with a photomultiplier tube, may be used to detect many types of ionizing radiation. Examples of specific uses to which such crystals are put include geophysical surveys for uranium and oil, clinical measurement of radioisotopes and radiation monitoring of personnel exposure.

5. Defendant HAMNER was employed by Hamner Electronics Company on or about January 1, 1955. In the course of his employment, HAMNER executed on or about March 11, 1964, an Agreement (hereinafter referred to as the "HAMNER AGREEMENT") which provided in part:

> "The Employee agrees to carefully guard and keep all secret or confidential information which shall or may concern the Company, its inventions, discoveries, improvements, techniques, methods of manufacture, finances, or other trade secrets, and he shall at no time, either during or after his employ by the Company, disclose, directly or indirectly, any such information without the prior written consent of the Company."

HARSHAW acquired control of Hamner Electronics Company and inured to the terms of the HAMNER AGREEMENT. HAMNER while employed by plaintiff became familiar with the various aspects, including production, sale and use, of synthetic crystals. Prior to his association with HARSHAW, HAMNER had no experience with production of such crystals.

6. Defendant MENEFEE, a physicist and mathematician, was employed by HARSHAW on or about February 3, 1964, and while so employed was a Product Group Manager for nuclear detectors and systems. In this capacity he was actively involved in the research, development and production of scintillation crystals such as sodium iodide (thallium activated) crystals, which gave him access to

the following: synthesis and purification procedures; quality reports and specifications; apparatus and methods utilized in the growth, fabrication and evaluation of such crystals; packaging techniques and procedures and the materials used therewith; customer lists; vendor lists; and confidential operational data. An employment application, which was signed by MENEFEE on February 3, 1964, included an earlier form of patent and confidential information agreement (hereinafter referred to as "APPLICATION AGREEMENT") which was uniformly required by HARSHAW in the employment of all such technical personnel. The APPLICATION AGREEMENT provided in part:

> "I will not at any time disclose any confidential information obtained by me during or as a result of my employment by the Company."

On February 8, 1968, MENEFEE and KEWANEE entered into an "Employee Agreement Relating to Inventions, Patents and Confidential Information" (hereinafter referred to as the "TRADE SECRET AGREEMENT"). Paragraphs 2 and 4 of the TRADE SECRET AGREEMENT provided as follows:

> "(2) I will keep and maintain adequate and current written records of all such inventions at all stages thereof, in the form of notes, sketches, drawings, and reports relating thereto, and including copies and reproductions thereof, which records shall be and remain the property of and available to the Company at all times. I will not at any time remove such records from the premises of the Company without the knowledge and consent of my superiors, and upon termination of my employment with the Company will turn over all such records to my superiors."

"(4) Unless authorized in writing, or instructed, by the Company, I will not during or after my employment disclose to others, or use, any of the Company's inventions or discoveries or its secret or confidential information, knowledge or data which I may obtain during the course of my employment relating to its business, customers, business methods, formulae, processes, machines, manufactures, or compositions, whether or not developed by me. The 'Company's inventions and discoveries, and its secret and confidential information, knowledge and data' as used in this paragraph shall be deemed to include all inventions and discoveries and secret and confidential information, knowledge and data in its possession whether owned by it or acquired from others under obligation to maintain confidential."

7. Defendant NOVAK, a senior research technician, was employed by HARSHAW on or about April 19, 1962, and was involved in and familiar with numerous operations pertaining to the forming, encapsulating and testing of scintillation crystals. NOVAK was later elevated to Development Engineer, wherein he was engaged on a highly secretive project involving scintillation crystals and gamma ray cameras. On or about April 18, 1962 he signed an employment application which contained the APPLICATION AGREEMENT. On or about February 8, 1968, NOVAK and KEWANEE concurrently executed the TRADE SECRET AGREEMENT. Before joining HARSHAW, NOVAK had no experience with such crystals or their application.

8. Defendant RICHERT, a research chemist, was employed by HARSHAW on or about February 7, 1962, and was actively engaged in the synthesis and purification of raw materials used in the production of synthetic crystals,

including scintillation crystals such as sodium iodide (thallium activated) crystals. Additionally, RICHERT was actively engaged in the production of materials used in the packaging of such crystals. On or about February 1, 1962 he signed an employment application which contained the APPLICATION AGREEMENT. Before joining HARSHAW, RICHERT had no experience with any such crystals.

9. Defendant SPURNEY, a laboratory technician, was employed by HARSHAW on or about May 31, 1961, and was involved with the refinement of existing crystal growth procedures and engaged in research on new scintillation crystal growth procedures. While in HARSHAW's employ he was also engaged in the operation of both developmental and plant scale equipment for growing synthetic crystals, including scintillation crystals such as sodium iodide (thallium activated) crystals. On or about May 31, 1961 he signed an employment application which contained the APPLICATION AGREEMENT. Before joining HARSHAW, SPURNEY had no experience with scintillation crystals.

10. Defendant SUSCHECK, a Production Manager, was employed by HARSHAW on or about May 1, 1963, and was actively engaged in the design and production of encapsulated scintillation crystals. In this capacity he was fully knowledgeable with crystal cutting, crystal surface preparation and materials of construction used in packaging such crystals such as metals, glass types, sealing and bonding agents, reflector materials and optical coupling materials. On or about April 6, 1963 he signed an employment application which contained the APPLICATION AGREEMENT. On February 8, 1968, SUSCHECK and KEWANEE concurrently executed the TRADE SECRET AGREEMENT. Before joining HARSHAW, SUSCHECK had no experience with scintillation crystals.

11. HARSHAW has spent and is continuing to spend many thousands of dollars in the maintenance and operation of laboratory and manufacturing facilities used in developing, improving and producing synthetic crystals, including scintillation crystals, in advertising such crystals, and in educating and familiarizing customers in the use of such crystals. The creativity of its employees, particularly those engaged in the design and manufacture of scintillation crystals, has led to many unique and complex developments, some of which are now being used in HARSHAW's products. A great many of these developments have not been revealed to the public or to HARSHAW's competitors, but have been treated by HARSHAW as trade secrets and confidential technical information.

12. The areas in which trade secrets and confidential technical information reside and are known by one or more of the individual defendants, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, are described and identified for the purpose of this Complaint, but are not limited to the following:

(a) The synthesis and purification procedures, processes, and formulae for the preparation of raw materials such as sodium iodide and thallium iodide;

(b) The growing procedures, processes and operational steps for converting the highly pure raw materials such as sodium iodide and thallium iodide into crystal ingots;

(c) The techniques, procedures, processes and operational steps for improving the yield of saleable crystal material;

(d) The techniques, procedures, processes and operational steps for converting such crystal material into a preselected form;

(e) The techniques, procedures, processes and operational steps for encapsulating such crystals;

(f) The techniques, procedures, processes and operational steps for reclaiming scrap crystal; and

(g) The various equipment containing proprietary designs, materials of construction therefor and materials used in conjunction with items (a) to (f) inclusive, as set forth above.

13. In order to retain its competitive position, HARSHAW has regularly and systematically endeavored to maintain the secrecy and confidentiality of all of its trade secrets and confidential information, including that specifically identified in Paragraph 11 above. Its efforts in this regard have included, but are not limited to, the following activities:

(a) requiring each employee having access to its trade secrets and confidential technical information to execute the APPLICATION AGREEMENT and/or the TRADE SECRET AGREEMENT;

(b) advising, instructing and requiring each of its employees on maintaining the secrecy and confidentiality thereof;

(c) limiting the access to its research and development and engineering departments to those employees concerned with the operation of such departments;

(d) requiring visitors to sign-in before being admitted to its facilities and further requiring that they be accompanied by authorized personnel;

(e) limiting the activities which can be observed by such visitors;

(f) marking prints and other materials with a notice of confidentiality;

(g) conspicuously posting a copy of Section 1333.51, Ohio Revised Code, which makes the theft of trade secrets a crime in Ohio; and

(h) advising, instructing and requiring each employee leaving the employ of HARSHAW that he must not take with him or thereafter use or disclose any of HARSHAW's trade secrets or confidential information.

The individual defendants, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, were likewise fully advised and instructed by HARSHAW in these particulars. Insofar as plaintiff knows, this policy of HARSHAW heretofore has been successful in protecting the confidentiality of its trade secrets and confidential technical information.

14. The trade secrets and confidential technical information of HARSHAW has enabled it to become a leader in the field of synthetic crystals. The work of HARSHAW during the employment of HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK has resulted in substantial technological advances in the field of growing scintillation crystals which has and will assure the continuing commercial leadership of HARSHAW. The competitive position of HARSHAW gained by its extensive research and development will be irreparably damaged if its trade secrets and confidential technical information are used by or divulged to competitors.

15. The individual defendants HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK were key employees in the scintillation crystal operation of

HARSHAW's efforts in recent years, and they jointly and severally had access to the trade secrets and confidential technical information applicable to the areas set forth in Paragraph 11. Substantially all of the knowledge gained by HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK in the field of scintillation crystals was gained while these men were employed by HARSHAW and had access to the existing and recently developed trade secrets and confidential technical information.

16. On or about July 1, 1969, HAMNER's employment contract with Hamner Electronics was terminated and he was elevated to Marketing Manager For Electronics. Unexpectedly and without warning HAMNER, MENEFEE, NOVAK and SUSCHECK resigned their employment with HARSHAW. HAMNER indicated that he was resigning to go into the investment financing business in New York, and his termination was effective on August 15, 1969. MENEFEE stated that he was resigning in order to start his own nuclear consulting business, and his termination was effective on July 31, 1969. NOVAK gave no reason for his resignation, and his termination was effective on or about September 12, 1969. SUSCHECK gave as a reason for resigning the availability of an opportunity to become part of a new business venture dealing with plastics, and his termination was effective on August 15, 1969. RICHERT tendered his resignation on August 15, 1968, in order to accept a one year teaching position at John Carroll University, and his termination was effective on August 30, 1968. SPURNEY resigned in 1966 to accept a position with the General Electric Company, and his termination was effective on December 15, 1966.

17. After an extensive preliminary investigation into the mass resignation described herein, it was learned and plaintiff on information and belief avers that:

(a) Before July 31, 1969, one or more of the individual defendants, HAMNER, MENEFEE, NOVAK and SUSCHECK decided to leave HARSHAW to form a competing company which would use the trade secrets and confidential technical information of HARSHAW in order to successfully produce and sell synthetic crystals.

(b) The originator(s) of the scheme then solicited and enticed others to join with him (them) until the group consisted of HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK.

(c) As the plan progressed, HAMNER, MENEFEE, NOVAK and SUSCHECK purposely spent time on Saturdays and Sundays at the HARSHAW plant under the pretext of tending to unfinished projects, when in reality they were using this opportunity to gain access to, uninterruptedly, large quantities of plaintiff's trade secrets and confidential information, including, but not limited to, drawings, reports, laboratory books, formulae, charts, lists of customers and accounts, sources of supply, and methods of production. In order to carry out their scheme, HAMNER solicited for several weeks prior to his termination, technical information concerning all phases of the production and encapsulating of scintillation crystals, from various HARSHAW employees, who unsuspectingly, and in light of HAMNER's high ranking position, were willing to respond to his probing questions in the belief that such was in the furtherance of HARSHAW's business. Unaware of the deceitful plan being perpetrated against it, HARSHAW permitted HAMNER, at his request, to remain on the premises until on or about September 1, 1969, despite the fact that his compensation ceased on August 15, 1969, on

the assumption that such additional time was required to bring to an orderly close certain sundry matters. In reality, HAMNER was using this additional time to complete the task of obtaining all the necessary trade secrets and confidential technical information of HARSHAW in order to enter into a competing business.

(d) The individual defendants constructed, had constructed for them, or leased a manufacturing facility located at 12345 Kinsman Road, Newbury, Ohio, which is suitable for the design, production, encapsulating and sale of synthetic crystals. In order to equip this facility, defendants have contracted at least one or more of HARSHAW's highly specialized suppliers and requested that he fabricate a component for them which forms an integral part of the crystal growing process. Specifically, the component involved is a seventeen inch diameter platinum crucible, such a crucible being suitable only for the growth of seventeen inch crystals. To date, HARSHAW believes it is the only producer of scintillation crystals in the world who is equipped and has the technical know-how and skill to grow and encapsulate a seventeen inch crystal.

(e) HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK are the nucleus, if not the only initial employees, of BICRON. HAMNER is the President and MENEFEE the Vice President and Secretary of BICRON. HAMNER, MENEFEE, SPURNEY and SUSCHECK are all members of the Board of Directors of BICRON.

18. Plaintiff is informed and believes and upon such information and belief further alleges that defendant

HAMNER has knowingly, wrongfully and unlawfully breached and will continue to breach the HAMNER AGREEMENT by disclosing to BICRON and by divulging and using, as an officer, director and employee of BICRON, some or all of the trade secrets and confidential technical information of HARSHAW, including, but not limited to, such secrets and information which fall within the areas identified in Paragraph 11 above. That defendants RICHERT and SPURNEY have knowingly, wrongfully and unlawfully breached and will continue to breach the APPLICATION AGREEMENT by disclosing to BICRON, and by divulging and using as employees of BICRON, some or all of the trade secrets and confidential technical information of HARSHAW, including, but not limited to, such secrets and information which fall within the areas identified in Paragraph 11 above. That defendants MENEFEE, NOVAK and SUSCHECK have knowingly, wrongfully and unlawfully breached and will continue to breach the APPLICATION AGREEMENT and TRADE SECRET AGREEMENT by disclosing to BICRON, and by divulging and using as employees of BICRON, some or all of the trade secrets and confidential technical information of HARSHAW, including but not limited to, such secrets and information which fall within the areas identified in Paragraph 11 above.

19. Plaintiff upon information and belief further alleges that the aforementioned acts of the individual defendants done in violation of said AGREEMENT(s) have caused and will cause plaintiff damage in excess of $1,000,000. Also, on information and belief, the individual defendants are not capable of responding in damages if assessed against them. That it is wholly impossible for plaintiff to detect all of the violations of said AGREEMENT(s), and unless the individual defendants are enjoined and re-

strained from continuing to violate said AGREEMENT(s), plaintiff will be wholly without redress and will be deprived of any benefits whatever from said AGREEMENT(s).

SECOND CAUSE OF ACTION

20. The plaintiff repeats, reiterates and realleges each and every allegation contained in Paragraphs 1 to 19, inclusive, of this Complaint with the same force and effect as though herein pleaded at length.

21. The services performed by each of the individual defendants while in the employ of HARSHAW was special, unique and extraordinary, and HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK each held his positions of trust and confidence with HARSHAW.

22. HARSHAW has never permitted an individual to gain access to its trade secrets and proprietary information nor observe the highly confidential processes by which it produces and encapsulates scintillation crystals, unless and until it had first concluded that the individual in question was a loyal and trustworthy employee who was fully aware of his obligation to maintain such secrets and information in the strictest of confidence. Due to the confidential relationship which existed between HARSHAW and the individual defendants, which relationship was well recognized by each of said defendants, HARSHAW permitted HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK to each have at their disposal and use materials pertaining to HARSHAW's trade secrets and confidential technical information and further permitted them to observe and take part in the highly secretive processes by which scintillation crystals are grown and encapsulated.

23. Plaintiff is informed and believes, and on such information and belief alleges, that HAMNER, MENEFEE,

NOVAK, RICHERT, SPURNEY and SUSCHECK have each knowingly, wrongfully and unlawfully breached and will continue to breach his position of trust and confidential relationship and the duties associated therewith in one or more of the following respects:

(a) By disclosing to BICRON and by using and divulging, as an employee of BICRON, some or all of the trade secrets and confidential information of HARSHAW, including but not limited to such secrets and information which fall within the areas identified in Paragraph 11 above.

(b) By agreeing and conspiring together, prior to the termination of their employment with HARSHAW, to form a competing corporation to solicit or sell, or attempt to solicit or sell, to plaintiff's customers, products substantially the same or identical to the products of plaintiff, and in particular a grown seventeen inch diameter sodium iodide (thallium activated) crystal; the names and addresses of such customers and the data concerning their needs and prior purchases, not being ascertainable by the usual and ordinary methods employed in competitive businesses, but having been procured and obtained by defendants during their employment by HARSHAW.

(c) By carefully and painstakingly planning and plotting the entire program of deceit and subversion while still in the employ of HARSHAW, and taking the requisite preliminary steps, as evidenced by the fact that the corporate charter for BICRON was executed on August 14, 1969, to form the aforementioned competing corporation.

(d) By knowingly, wrongfully and unlawfully persuading, inducing and enticing one or more of the

individual defendants to leave the employ of HARSHAW and to go to work for BICRON, and by knowingly, wrongfully and unlawfully attempting to persuade, induce or entice individuals presently employed by and of great value to HARSHAW to terminate such employment and go to work for BICRON.

(e) By knowingly, wrongfully and unlawfully persuading, inducing and enticing one or more of the individual defendants to breach and continue to breach his AGREEMENT(s) with HARSHAW, and to breach and continue to breach his position of trust and confidential relationship with HARSHAW.

24. Plaintiff is informed and believes, and upon such information and belief further alleges, that the aforementioned acts of the individual defendants done in violation of their positions of trust and confidential relationships both before and after the termination of their employment with HARSHAW have caused plaintiff damage in excess of $1,000,000 and that further such acts done by said individual defendants will, unless restrained, cause irreparable injury and damage to plaintiff, the exact extent, nature and amount of such damage and injury being impossible to ascertain.

THIRD CAUSE OF ACTION

25. The plaintiff repeats, reiterates and realleges each and every allegation contained in Paragraphs 1 to 24, inclusive, of this Complaint with the same force and effect as though herein pleaded at length.

26. That defendant BICRON, in utter disregard of the contractual obligations and bounden duties of the individual defendants, as heretofore discussed with particularity, and in collaboration with one or more of said indi-

vidual defendants, following an adroitly conceived and cunningly devised plan, did undertake, systematically, to disrupt and destroy HARSHAW's whole business organization, by alluring, enticing and persuading HARSHAW's employees summarily to leave HARSHAW's services, and to combine, conspire and collaborate with BICRON, to deprive HARSHAW at once of the experienced services and aid of all those who, by reason of long experience and detailed knowledge gained while in HARSHAW's employ, had become most useful and necessary, and to induce said employees to bring along and carry over with them all the secret and confidential knowledge, education and experience which they had gained and acquired while in a position of trust and confidence with HARSHAW, to the end that BICRON, and those conspiring with it, might thereafter make full use of the same.

27. Upon information and belief, BICRON's product line and development work is now primarily confined to growing seventeen inch diameter sodium iodide (thallium activated) crystals, and the hiring of HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK is for the purpose of benefiting from the confidential information and manufacturing procedures gained by these individual defendants while working in highly secretive areas of HARSHAW's crystal operation. In this manner, BICRON is attempting to obtain a start in areas of competition with HARSHAW without the expense and time required to train technical personnel and develop independently a crystal growing facility. On information and belief, the hiring of HAMNER, MENEFEE, NOVAK and SUSCHECK as a "package" from HARSHAW was planned, encouraged and executed by BICRON over many weeks during which one or more of the individual defendants was persuaded by BICRON to abandon his duties at

HARSHAW and to become an employee and to work in the same capacities for BICRON as he did for HARSHAW.

28. On information and belief, BICRON intends to use HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK to establish an organization to design, develop, produce and sell scintillation crystals and, more specifically, to grow a seventeen inch diameter sodium iodide (thallium activated) crystal, which heretofore only HARSHAW had been capable of producing.

29. Plaintiff is informed and believes and on such information and belief alleges that BICRON is guilty of unfair competition, in one or more of the following respects:

(a) By knowingly, wrongfully and unlawfully persuading, inducing and enticing one or more of the individual defendants to leave the employ of HARSHAW and to accept employment with BICRON, and by knowingly, wrongfully and unlawfully attempting to persuade, induce or entice individuals presently employed by and of great value to HARSHAW to terminate such employment and go to work for BICRON.

(b) By knowingly, wrongfully and unlawfully persuading, inducing and enticing one or more of the individual defendants to breach and continue to breach his AGREEMENT(s) with HARSHAW, and to breach and continue to breach his position of trust and confidential relationship with HARSHAW.

(c) By knowingly, wrongfully and unlawfully soliciting one or more of the individual defendants to disclose the trade secrets and confidential technical information of HARSHAW, and then willfully appro-

priating and/or using same in order to successfully carry on the operations of BICRON.

(d) By unjustly enriching itself at the expense of HARSHAW, through the appropriation and/or use of HARSHAW's trade secrets and confidential technical information, whereby BICRON has obtained, without incurring any expense, the benefit of years of research and development which HARSHAW has conducted at a substantial cost in order to maintain its leadership in the industry as a manufacturer of high quality crystals.

30. Upon information and belief, one or more of the individual defendants HAMNER, MENEFEE, NOVAK and SUSCHECK, but for the enticement and inducement by BICRON, would have remained in the employ of HARSHAW, or would not have abruptly terminated his employment. By enticing these employees away from HARSHAW on such short notice, BICRON has caused and will continue to cause substantial and irreparable damage to HARSHAW. The sudden and unexpected departure of the above-identified defendants resulted in production delays attributable to the time required for finding and training personnel to replace HAMNER, MENEFEE, NOVAK and SUSCHECK, without the assistance of same. Consequently, plaintiff has suffered substantial monetary damages through loss of sales and increased operational expense.

31. Plaintiff has no adequate remedy at law for the relief sought herein and it will suffer irreparable injury unless injunctive relief is granted, since the disclosure and use of HARSHAW's trade secrets and confidential technical information will make it impossible to preserve its rights therein.

WHEREFORE, plaintiff prays that this Court:

A. Issue a permanent injunction upon final adjudication of this matter:

(1) Restraining HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from breaching and violating their AGREEMENT(s) with HARSHAW and plaintiff.

(2) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from communicating or divulging either orally or in writing or otherwise, to any person, firm, corporation, or other person whomsoever, any trade secrets or confidential information acquired by them, or imparted to them regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(3) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from using any, some or all of the trade secrets and confidential technical information of HARSHAW.

(4) Restraining HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK from remaining in the employ of BICRON.

(5) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from employing any other employee or former em-

ployee of HARSHAW, in product areas which could result in or encourage the disclosure and/or use of any trade secrets or confidential information acquired by him, or imparted to him in the course of his employment with HARSHAW, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(6) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and any of them, from persuading, enticing and inducing any other employee or former employee of HARSHAW to disclose any trade secrets or confidential information acquired by him, or imparted to him in the course of his employment with HARSHAW, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(7) Ordering BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and all of them, to deliver up for destruction all documents, drawings, machines, and other matter disclosing, embodying, or intended for carrying out plaintiff's trade secrets and confidential technical information.

B. Issue a preliminary injunction, and pending a hearing upon the preliminary injunction and notice of same as required by law, issue a temporary restraining order, without notice:

(1) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from communicating or divulging either orally or in writing, or otherwise, to any person, firm, corporation, or other person whomsoever, any trade secrets or confidential information acquired by them, or imparted to them regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(2) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and each of them, from using any, some or all of the trade secrets and confidential technical information of HARSHAW.

(3) Restraining BICRON, its officers, agents and employees, from employing HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, or any of them, or from employing any other employee or former employee of HARSHAW, in areas which could result in or encourage the disclosure and/or use of any trade secrets or confidential information acquired by them, or imparted to them in the course of their employment with HARSHAW, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(4) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and any of them, from persuading, enticing and inducing any other employee or former employee of HARSHAW, to disclose any trade secrets or confidential information acquired by him, or imparted to him in the course of his employment with HARSHAW, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers and suppliers of HARSHAW.

(5) Restraining BICRON, its officers, agents and employees, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, and any of them from altering, destroying, copying or in any other way disturbing any and all notes, work papers, charts, blueprints, drawings, sketches, books, correspondence, memoranda, photographs and any and all other writings, typings, printings or drafts, copies or reproductions thereof, in the possession, custody or control of BICRON, its officers, agents or employees, or any of the individual defendants, pertaining to the design, manufacture and sale of scintillation crystals, and further restraining defendants from removing any or all of the aforementioned items which are presently located on or about the premises of 12345 Kinsman Avenue, Newbury, Ohio, from said premises.

C. Order an accounting of the monetary damages caused by the individual defendants' breach of contract, trust and confidential relationship and the inducement of one or more of the following, HAMNER, MENEFEE and

SUSCHECK from HARSHAW, and award such damages to plaintiff and render a judgment thereon against BICRON, HAMNER, MENEFEE, NOVAK, RICHERT, SPURNEY and SUSCHECK, jointly and severally.

D. Render a judgment against BICRON in the amount by which it was or will be unjustly enriched due to the savings of research and development costs and lead time on items produced in competition with HARSHAW by the use of know-how, trade secrets and other confidential information gained from inducing the individual defendants to breach their respective agreements, positions of trust and confidential relationships.

E. Order an accounting for all other damages occasioned by plaintiff as a result of the conduct described herein.

F. Render a judgment for damages against the defendants, jointly and severally, and in favor of the plaintiff in the amount of $1,000,000.

G. Grant plaintiff such other and further relief as it may be entitled to in the premises, including recovery of reasonable attorneys' fees and its costs therein expended.

Respectfully submitted,

/s/ EDWARD P. TROXELL
JONES, DAY, COCKLEY & REAVIS
Attorney for Plaintiff

Of Counsel:
EDWARD P. TROXELL
BARRY L. SPRINGEL
ROBERT P. MOONEY, ESQ.
JOHN P. HAZZARD, ESQ.
KEWANEE OIL COMPANY

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ORDER TO SHOW CAUSE AND TEMPORARY RESTRAINING ORDER

(Filed April 17, 1970)

Upon the verified Complaint, the Affidavit of Elmer C. Stewart and Dr. Carl F. Swinehart, and the Certificate of Edward P. Troxell, attached hereto, it is

ORDERED, that the defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, show cause before this Court, on April 27, 1970, at 10 A.M., or as soon thereafter as counsel can be heard, why a preliminary injunction should not issue herein enjoining the defendants, their agents, servants, employees and attorneys and all persons in active concert and participation with them, pending the final hearing and determination of this action, from engaging in or causing any of the acts hereinafter specified; and

It appearing to the court that defendants are about to commit the acts hereinafter specified and they will do so unless restrained by order of this court, and that immediate and irreparable injury, loss or damage will result to plaintiff before notice can be given and the defendants or their attorneys can be heard in opposition to the granting of a temporary restraining order, in that plaintiff's trade secrets and confidential technical information will be disclosed and used by defendants and possibly irrevocably lost for all times, and under the balance of convenience

test, a temporary restraining order should be issued forthwith to avoid such disclosure and use and the ensuing damage, and plaintiff having given security approved by the court in the sum of $5000.00 for the payment of such costs and damages as may be incurred or suffered by any party who is found to have been wrongfully enjoined or restrained; it is further

ORDERED that:

(1) Defendants, Bicron Corporation, its officers, agents and employees, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, be and they hereby are restrained from communicating or divulging either orally or in writing, or otherwise, to any person, firm, corporation, or other person whomsoever, any trade secrets or confidential information acquired by them, or imparted to them regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers or suppliers of Harshaw Chemical Company.

(2) Defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, their agents, servants, employees and attorneys and all persons in active concert and participation with them be and they hereby are restrained from using any, some or all of the trade secrets and confidential information of Harshaw Chemical Company.

(3) Defendants, Bicron Corporation, its officers, agents, servants, employees and attorneys and all

persons in active concert and participation with it be and are hereby restrained from employing Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, or any of them, or from employing any other employee or former employee of Harshaw Chemical Company, in areas which could result in or encourage the disclosure and/or use of any trade secrets or confidential information acquired by them, or imparted to them in the course of their employment with Harshaw Chemical Company, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers, or suppliers of Harshaw Chemical Company.

(4) Defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, their agents, servants, employees, and attorneys and all persons in active concert and participation with them be and are hereby restrained from persuading, enticing and inducing any other employee or former employee of Harshaw Chemical Company, to disclose any trade secrets or confidential information acquired by him, or imparted to him in the course of his employment with Harshaw Chemical Company, regarding the machinery, or any part thereof, tools, appliances, apparatus, formulae, processes, devices, methods, procedures, ingredients, inventions, experiments, experimental and research work, designs, drawings, plans, books, customers or suppliers of Harshaw Chemical Company.

(5) Defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, their agents, servants, employees, and attorneys and all persons in active concert and participation with them be and are hereby restrained from disturbing, destroying, copying or in any other way altering any and all notes, work papers, charts, blueprints, drawings, sketches, books, ledgers, correspondence, memoranda, photographs and all other writings, typings, printings or drafts, copies or reproductions thereof, in the possession, custody or control of Bicron Corporation, its officers, agents or employees, or any of the individual defendants, pertaining to the design, manufacture, canning and sale of scintillation crystals, and further restrained from removing any and all of the aforementioned items which are presently located on or about the premises of 12345 Kinsman Avenue, Newbury, Ohio, from said premises.

It is further ORDERED, that this order expire within 10 days after entry unless within such time the order for good cause shown is extended for a like period, or unless the defendants consent that it may be extended for a longer period; and it is further

ORDERED, that copies of this order together with proper summons issued by the clerk of this court, be immediately served by the United States Marshal upon the defendants.

Issued at 2:30 P.M., Apr. 17, 1970.

/s/ JAMES C. CONNELL
United States District Judge

IN THE, UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ORDER EXTENDING TEMPORARY RESTRAINING ORDER

(Filed May 1, 1970)

This cause came on to be heard on April 27, 1970, pursuant to an Order to Show Cause and plaintiff's prayer for a preliminary injunction, and the Court having decided that further testimony will be required in this matter before ruling thereon; and it appearing to the Court from the verified complaint and the affidavits of Elmer Stewart and Carl Swinehart that defendants unless restrained by this Court will commit the acts referred to in said Restraining Order, and it further appearing that immediate and irreparable injury, loss and damage will result to plaintiff unless defendants are so restrained pending the determination of plaintiff's request for a preliminary injunction, and for good cause shown, it is

ORDERED that the Temporary Restraining Order issued in this cause on the 17th day of April, 1970, be and it hereby is extended until a final determination is made with respect to the issuance of a preliminary injunction, subject to further order of this Court.

Dated:
May 1, 1970

/s/ G. KALBFLEISCH
United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ORDER UNDER RULE 30(b) FEDERAL RULES OF CIVIL PROCEDURE

(Filed May 1, 1970)

IT IS HEREBY ORDERED that, if in the course of proceedings in this action prior to and during trial or hearing proceedings any party is required to disclose, list or state what the disclosing party contends are trade secrets, know-how or confidential information the following rules and conditions shall govern the parties, their attorneys, and agents

1. At the time of such disclosure, whether the disclosure is in the form of a list of trade secrets, know-how or confidential information or in the form of testimony, or is in the form of drawings, pictures, blue prints, sketches, prints, papers explanatory thereof or depositions, deposition transcripts, answers to interrogatories, answers to requests for admissions, or in any other form whatsoever, such matter so disclosed shall be treated as being confidential in every respect and shall not be disclosed, appropriated, used, or described in any manner by the receiving party, parties, their attorney or attorneys, court reporters, clerks or other officers of the court.

2. The papers, records, transcripts, exhibits or other evidence of such disclosure shall be packaged, sealed and marked "confidential" and shall be treated

in every respect as being confidential by the receiving party, parties, their attorney or attorneys, court reporters, clerks or other officers of the court.

3. Such disclosure shall not in any manner be treated or deemed as being a public disclosure.

4. No person or party shall, for the purpose of competition or otherwise, disclose or make use of any information obtained in this action if such information has been designated as confidential by the opposite party to this action.

5. The restrictions set forth in any of the preceding paragraphs shall not apply to information which at or prior to disclosure thereof in this action is or was in public knowledge, or which, after disclosure thereof, becomes public knowledge other than by act or omission of the non-designating party or its or his agents, consultants and attorneys.

6. This order is without prejudice to the right of any party to oppose production of information or evidence for lack of timeliness, relevance or for any other reason recognized by the rules of evidence governing these proceedings.

Dated: May 1, 1970.

/s/ G. KALBFELISCH
United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ANSWER OF DEFENDANT THOMAS H. RICHERT

(Filed June 22, 1970)

ANSWER TO FIRST CAUSE OF ACTION

FIRST DEFENSE

Defendant, Thomas H. Richert, admits the allegations contained in Paragraphs 1, 2, 3 and 4 of the Complaint; alleges that he is without knowledge or information sufficient to form a belief as to the truth of the allegations contained in Paragraphs 5, 6, 7, 9 and 10 of the Complaint; in answer to Paragraphs 8 and 11 through 19 of the First Cause of Action, the defendant admits that he was employed by Harshaw on February 7, 1962, and was engaged in the purification of raw materials used in the production of synthetic crystals, including scintillation crystals such as sodium iodide (Thallium activated) crystals, and that he did sign an employment application on or about February 1, 1962 which contained the Application Agreement; that he did resign from Harshaw effective August 30, 1968 to accept a teaching position for one year at John Carroll University; defendant further denies each and every other allegation contained in Paragraphs 8 and 11 through 19 inclusive of the Complaint.

ANSWER TO SECOND CAUSE OF ACTION

Defendant Thomas H. Richert denies each and every allegation contained in the Second Cause of Action of the Complaint as shown in Paragraphs 20 through 24, inclusive.

ANSWER TO THIRD CAUSE OF ACTION

Defendant Thomas H. Richert denies each and every allegation contained in the plaintiff's Third Cause of Action as set forth in Paragraphs 25 through 31 of the Complaint.

WHEREFORE, having fully answered the Complaint of plaintiff, this defendant prays that this Court enter judgment for defendant, Thomas H. Richert, on all three causes of action set forth in plaintiff's Complaint.

ZIDAR, MORGAN, OAKAR AND BURNS
By MATTHEW A. ZIDAR, *Partner*
A member of the firm

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ANSWER

(Filed July 22, 1970)

Now come the defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Richard W. Spurney and Harry Suscheck, and for their answer to the Complaint herein say:

ANSWER TO FIRST CAUSE OF ACTION

1. In answer to paragraph 1 of the First Cause of the Complaint, defendants admit the averments of said paragraph.

2. In answer to paragraph 2 of the First Cause of the Complaint, defendants admit the averments of said paragraph.

3. In answer to paragraph 3 of the First Cause of the Complaint, defendants admit the jurisdiction of the Court.

4. In answer to paragraph 4 of the First Cause of the Complaint, defendants admit the averments of said paragraph. Defendants further say that Harshaw's scintillation crystal design experience was paid for in part by the United States Atomic Energy Commission and stemmed from creative work done by Dr. Robert Hofstadter of Princeton University and others and was not unique to Harshaw.

5. In answer to paragraph 5 of the First Cause of the Complaint, defendants admit the averment of said paragraph, that Hamner was employed by Hamner Electronics Company on or about January 1, 1955 and did on or about March 11, 1964 execute an agreement with Hamner Electronics, and that Harshaw Chemical Company acquired control of Hamner Electronics. Defendants deny that said agreement inured to Harshaw because Hamner Electronics was dissolved and said agreement was terminated on May 20, 1969 to be effective July 31, 1969 by E. C. Stewart, President of Hamner Electronics Co., Inc. Defendants deny that Hamner was employed by plaintiff and that he became familiar with the various aspects, including production, sale, and use of synthetic crystals. Defendants admit that while Hamner had no experience with the production of such crystals prior to March 11, 1964, Hamner did have experience prior to March 11, 1964 with the use and sale of thallium activated sodium iodide crystals because Hamner Electronics had been a manufacture representative of Isotopes Inc.

6. In answer to paragraph 6 of the First Cause of the Complaint, defendants admit that Menefee, a physicist and mathematician was employed by Harshaw on or about February 3, 1964 and that as of February 1969 was a Product Group Manager. Defendants deny that he was actively involved in the research, development and production of scintillation crystals such as sodium iodide (thallium activated) crystals. Defendants deny that Menefee's capacity gave him access to anything not available to all employees of plaintiff except defendants admit that Menefee's capacity as Product Group Manager gave him access to certain Profit and Loss Statements, and some personnel files. Defendants admit that Menefee filled-out and signed an application for employment with Harshaw Chemical Company on February 3, 1964 but deny that Menefee contracted in any way with Plaintiff. Defendants deny for want of knowledge that this agreement was an earlier form which was uniformly required by Harshaw. Defendants admit that Menefee signed an "Employee Agreement to Invention, Patent and Confidential Information," on February 8, 1968 but deny that Menefee thereby contracted in any way with the plaintiff because there was no consideration for such agreement.

7. In answer to paragraph 7 of the First Cause of Action of the Complaint, defendants admit that Novak was employed by Harshaw except that defendants believe he was employed in May 1962. Defendants state that Novak left Harshaw in September 1969 and went to work for General Electric where he was employed until he became dissatisfied with a manual labor job he was assigned to during the strike. Defendants deny that Novak was a senior research technician. Defendants admit that Novak was involved in and familiar with some operations pertaining to the encapsulating of scintillation crystals but

deny he was involved in or familiar with operations pertaining to the forming and testing of scintillation crystals. Defendants deny that Novak was elevated to Development Engineer, wherein he was engaged on a highly secretive project involving scintillation crystals and gamma ray cameras. In further answer defendants state that in 1968 Novak was transferred from encapsulation to the nuclear medicine group. Defendants admit that Novak filled-out and signed an application for employment with Harshaw Chemical Company but deny that he in any way contracted with plaintiff. Defendants admit that Novak signed an "Employee Agreement Relating to Invention, Patents and Confidential Information" on February 8, 1969 but deny that Novak thereby contracted in any way with the Plaintiff. Defendants admit that Novak had no experience with scintillation crystals or their application before joining Harshaw.

8. In answer to paragraph 8 of the First Cause of action of the Complaint, defendants admit Richert was employed by Harshaw on February 7, 1962, and was engaged in the purification of raw materials used in the production of synthetic crystals including scintillation crystals such as sodium iodide (thallium activated) crystals. Defendants deny that he was engaged in the synthesis of raw materials. Richert left Harshaw in August 1968 and became a university chemistry instructor. Defendants deny Richert was engaged in the production of materials used in the packaging of such crystals except defendants admit Richert as a chemist ran a simple distillation of 1,2-propanediamine. Defendants admit that Richert filled out and signed an application for employment on or about February 1, 1962 with Harshaw Chemical Company but deny that he is in any way contractually bound to Plaintiff. Defendants admit that Richert had no experience with the

production of synthetic crystals before joining Harshaw. Defendants state that Richert had experience in the purification of materials before joining Harshaw using the same techniques that were used at Harshaw.

9. In answer to paragraph 9 of the First Cause of action of the Complaint defendants admit that Spurney, a laboratory technician, was employed by Harshaw on or about May 31, 1961 and engaged in research on optical, and scintillation crystal growth procedures. Defendants deny that he was involved with refinements of existing crystal growth procedures. Spurney left Harshaw in 1966 and was employed by General Electric Company until September 1969. Defendants admit that Spurney was engaged in the operation of developmental equipment for growing synthetic crystals including scintillation crystals except defendants deny he operated said equipment for the growth of sodium iodide (thallium activated) crystals, and deny that he operated plant scale equipment for growing synthetic crystals. In further answering defendants state that Spurney operated said equipment for growing a sodium iodide (thallium activated americuim doped) crystal with a diameter of 45 mm and that he has no experience with 17" diameter sodium iodide (thallium activated) crystal and left the employment of the plaintiff before said 17 inch crystal were produced by plaintiff. Defendants admit that Spurney filled-out and signed an employment application with the Harshaw Chemical Co. but deny that he is in any way contractually bound to plaintiff. Defendants admit that Spurney had no experience with scintillation crystals before joining Harshaw. In further answering defendants state that Spurney had experience in growing crystals before joining Harshaw.

10. In answer to paragraph 10 of the First Cause of action of the Complaint, defendants admit that Suscheck

was employed at Harshaw on or about May 1, 1963 and was engaged in the design and production of encapsulating of scintillation crystal detectors. Defendants admit that in this capacity he was knowledgeable with crystal surface preparation and materials of contract used in packaging such crystals. Defendants deny he was knowledgeable with crystal cutting. Defendants admit that he filled-out and signed an application for employment on or about April 6, 1963 with Harshaw Chemical Company but deny that he is in any way contractually bound to Plaintiff. Defendants admit that on February 8, 1968 Suscheck signed an "Employee Agreement Relation to Invention, Patent and Confidential Information" but deny that he thereby contracted in any way with the plaintiff. Defendants admit that Suscheck had no experience with scintillation crystals before joining Harshaw and in further answer state that Suscheck prior to joining Harshaw was trained and experienced in design work.

11. In answer to paragraph 11 of the First Cause of action of the Complaint defendants deny that Plaintiff has spent and is continuing to spend many thousands of dollars in the maintenance and operation of laboratories and manufacturing facilities in developing, improving and producing synthetic crystals including scintillation crystals. Defendants admit that Plaintiff has advertised scintillation crystals and has educated and familiarized customers in the use of synthetic crystals. Defendants deny that any unique developments have been made at Harshaw by its employees in the design and manufacture of scintillation crystals and state that Harshaw has no pending patent applications on any of its purported trade secrets. Defendants deny that any developments at Harshaw have not been revealed to the public or to Harshaw's competitors and deny that any information has been treated by Harshaw as trade secrets and confidential information.

Further answering, defendants state that all areas of the manufacture and production of scintillation crystals at Harshaw have been revealed to the public including persons technically skilled in the areas of scintillation crystals by reason of plant tours, photographs in catalogues, and other actions.

12. In answer to paragraph 12 of the First Cause of action of the Complaint, defendants deny each and every allegation. Defendants state that three other United States companies grow sodium iodide (thallium activated) crystals and that the various techniques in the areas of purported trade secrets claimed by Harshaw are disclosed in the literature and known in the trade and are not valid trade secrets of Harshaw.

13. In answer to paragraph 13 of the First Cause of action of the Complaint, defendants deny that Harshaw has in any way endeavored to maintain secrecy and confidentiality of any information in the area of synthetic crystals including scintillation crystals such as sodium iodide (thallium activated) crystals.

To the contrary, defendants state:

(a) Neither Hamner, Spurney, nor Richert signed the Trade Secret Agreement. Hamner did not sign the Application Agreement.

(b) Prior to August 15, 1969, employees were not given any instruction on maintaining secrecy.

(c) There was free access to the research and development departments.

(d) Defendants deny that Harshaw required visitors to sign in before being admitted to its facilities and defendants state that most visitors at the 97th Street facility

came in through a side door off the parking lot that looked like a front door and did not sign in.

(e) The activities observed by visitors were never limited. One Vern Mackay of Oak Ridge spent weeks in Harshaw's cutting and encapsulating department without limitation.

(f) The confidential marking was applied sporadically at the most. Many documents which disclose what Harshaw now claims to be trade secrets are not marked confidential.

(g) If section 1333.51 of the Ohio Revised Code ever was posted, which defendants deny, such was not done until after Kewanee acquired Harshaw.

(h) Defendants deny that any general debriefing involving trade secrets was given to persons leaving the employment of Harshaw. Of the named defendants, only Menefee recalls any such debriefing.

14. In answer to paragraph 14 of the First Cause of action of the Complaint, defendants deny that Harshaw is or has become a leader in the field of synthetic crystals and deny that any technical information has enabled them to become leaders in the field of synthetic crystals. Defendants deny that the work of Harshaw during the employment of Hamner, Menefee, Novak, Spurney and Suscheck resulted in substantial technological advances in the field of growing scintillation crystals. In further answering defendants state that no technological advances of any substance have been made in the field of growing scintillation crystals after 1960 by Harshaw or anyone else. Defendants deny that any technical information will assure the continuing commercial leadership of Harshaw in the field of growing scintillation crystals. Defendants deny that substantial research and development is now being

maintained by Harshaw but to the contrary state that Harshaw's department dealing with scintillation crystals has had severe budget cuts.

15. In answer to paragraph 15 of the First Cause of action of the Complaint, defendants deny that Hamner, Menefee, Novak, Suscheck and Spurney were key employees in the scintillation crystal operation of Harshaw. In further answering defendants state that Hamner's employment contract with Hamner Electronics was terminated by Hamner Electronics on May 20, 1969 to be effective July 31, 1969 and he has not been replaced. Menefee's position at Harshaw since he left their employment has been dissolved. Novak was merely a technician. As for Richert, when the person in the position above him retired a person from the outside was given his position. Spurney was merely a technician. In further answering defendants state that the skills employed by Suscheck in performance of his position were the same skills possessed by many other people.

Defendants deny that Plaintiff has any trade secrets or confidential information and that defendant's knowledge in the field of scintillation crystals was gained from Harshaw trade secrets.

16. In answer to paragraph 16 of the First Cause of action of the Complaint, defendants admit that Hamner's employment contract with Hamner Electronics was terminated and that said action was taken on May 20, 1969 to be effective July 31, 1969. Defendants deny that Hamner was in any way elevated to any position including Marketing Manager for Electronics. Defendants admit that Hamner submitted a formal resignation to E. C. Stewart except that said resignation was merely a formality based on the termination of his employment contracted and that he was given no title, responsibility or private office. De-

fendants deny that Hamner indicated he was going into the investment financing business in New York. In further answering defendants state that Hamner enrolled in the New York School of Finance, a correspondence school, on February 27, 1969. Defendants deny that Menefee stated he was resigning in order to start his own nuclear consultant business but admit that his termination was effective as of July 31, 1969. Menefee submitted his resignation June 9, 1969. In further answering defendants state that Menefee formed a nuclear consultant firm with another employee at Harshaw in the spring of 1968 and informed his supervisor E. C. Stewart of this outside interest. In further answering defendants state that Menefee resigned from Harshaw because he was discouraged with his impossible task which he had to perform at Harshaw. Defendants deny that Novak gave no reason for his resignation and admits he left the employment of Harshaw on September 12, 1969. In further answering defendants state that Novak was disappointed with his position at Harshaw in early 1968 and in 1969 informed Harshaw that if he was transferred back to the encapsulation department he would quit. When informed by his superior in the Nuclear Medicine Department approximately 2 weeks bfore September 12, 1969 that he was to be transferred back to the encapsulation department he quit. Defendants deny that Suscheck gave as his reason for resigning the opportunity to become part of a new business venture dealing with plastics but defendants admit that he left Harshaw on August 15, 1969. In further answering defendants state Suscheck had complained and discussed with E. C. Stewart the problems of his employment because of no authority over employees at Elyria which made it difficult to perform his job. Defendants admit that Richert tendered his resignation on August 15, 1968 in order to accept a one-year teaching position at

John Carroll University and his termination was effective August 30, 1968. Defendants admit that Spurney resigned in 1966 to accept a position with General Electric Company and his termination was effective on December 13, 1966.

17. Defendants deny that there was any planned concerted action by them to form a corporation prior to the time when those still employed by Harshaw had given notice to Harshaw that they would be leaving its employment. Defendants deny that there was any mass resignation and point out that Spurney, and Richert were not employed by Harshaw at all in 1969 that Novak left to work for General Electric without any intention of becoming associated with Bicron, that Hamner was in effect forced to leave by reason of the dissolution of Hamner Electronics and that Menefee left because he was dissatisfied.

Defendants deny that there was any assembly of material pertaining to the purported trade secrets of Harshaw.

Defendants deny that there are any trade secrets involved in the crucible for growing crystals.

Defendants admit that they contracted Englehard Industries to supply them with a 17 inch platinum crucible because it is the only supplier of such crucibles.

Defendants deny that Harshaw is the only company capable of growing 17 inch sodium iodide (thallium activated) crystals and, to the contrary, say that Quartz and Silice of Paris, France grows such crystals and through its United States agents has them available for purchase.

Defendants deny that Richert is employed or has ever been an employee of Bicron Corporation. Defendants admit that Hamner is president and Menefee is Vice Presi-

dent of Bicron. Defendants admit that Hamner, Menefee, Spurney and Suscheck are all members of the Board of Directors of Bicron Corporation.

18. In answer to paragraph 18 of the First Cause of action of the Complaint, defendants deny each and every allegation of paragraph 18.

19. In answer to paragraph 19 of the First Cause of action of the Complaint, defendants deny each and every allegation of paragraph 19.

Further answering, defendants deny all and singularly each and every averment contained in the First Cause of action of the Complaint not hereinbefore expressly and specifically admitted to be true.

ANSWER TO SECOND CAUSE OF ACTION

20. In answer to paragraph 20 of the Second Cause of action of the Complaint, defendants deny each and every averment contained in paragraph 20 and in further answering deny each and every averment of paragraph 1-19 inclusive not hereinbefore expressly and specifically admitted to be true.

21. In answer to paragraph 21 of the Second Cause of action of the Complaint, defendants deny each and every allegation of paragraph 21.

22. In answer to paragraph 22 of the Second Cause of action of the Complaint, defendants deny each and every allegation of paragraph 22. Defendants state that their status as employees was no different than the status of all other employees and that no special rights or privileges with respect to purported trade secrets were conferred upon them. To the contrary, defendants say all employees of Harshaw had free access to its facilities.

23. In answer to paragraph 23 of the Second Cause of action of the Complaint, defendants deny each and every allegation of paragraph 23.

Defendants deny that plaintiff has any reason to believe that any defendant would breach his obligations, if any, to Harshaw. Defendants say that Harshaw brought this action without cause or justification for the purpose of bankrupting defendant Bicron eliminating competition, and preserving a dominant position in the field of growing sodium iodide (thallium activated) crystals.

24. In answer to paragraph 24 of the Second Cause of action of the Complaint, defendants deny each and every allegation in paragraph 24.

Further answering, defendants deny all and singularly each and every averment contained in the Second Cause of action of the Complaint not whereinbefore specifically and expressly admitted to be true.

ANSWER TO THIRD CAUSE OF ACTION

25. In answer to paragraph 25 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 25 and deny each and every allegation contained in paragraphs 1-24 inclusive of the Complaint which has not been specifically and expressly admitted to be true.

26. In answer to Paragraph 26 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 26.

27. In answer to paragraph 27 of the Third Cause of action of the Complaint, defendants admit that Bicron plans to grow sodium iodide (thallium activated) crystals,

as do three other United States companies and that Bicron plans to grow 17 inch crystals as does Quartz and Silice.

Defendants deny that Harshaw has any proprietary rights in this area other than perhaps patent rights about which defendants have no present knowledge.

Defendants deny all allegations of paragraph 27 not above admitted.

28. In answer to paragraph 28 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 28 except that Bicron intends to produce and sell scintillation crystals including the growth of a 17" diameter sodium iodide (thallium activated) crystals. Defendants state, on information and belief, that Quartz and Silice grows 17 inch crystals without using any purported Harshaw trade secrets and that Harshaw is not unique in growing 17 inch crystals.

29. In answer to paragraph 29 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 29.

30. In answer to paragraph 30 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 30.

31. In answer to paragraph 31 of the Third Cause of action of the Complaint, defendants deny each and every allegation in paragraph 31.

Further answering defendants deny all and singularly each and every averment contained in the Third Cause of the Complaint not hereinbefore specifically and expressly admitted to be true.

WHEREFORE, defendants pray that this Court:

(a) Dismiss the Complaint of plaintiff.

(b) Award costs and attorney fees to defendants.

(c) Enjoin plaintiff from in any way publicizing this action or interfering in the efforts of defendant Bicron to sell its crystals or otherwise unfairly compete with Bicron.

Respectfully submitted,

By WILLIAM C. McCOY, JR
JAMES A. HOFELICH
McCOY, GREENE, & HOWELL
Attorneys for Defendants

BICRON CORPORATION
LLOYD H. HAMNER
JULIOUS M. MENEFEE
WILLIAM P. NOVAK
RICHARD W. SPURNEY
and
HARRY SUSCHECK

FINDINGS OF FACT AND CONCLUSIONS OF LAW (AS EXCISED)

[Certain material has been deleted consistent with the Order Supplemental to Memorandum of Decision.]

(Filed November 24, 1970)

Civil Action No. C 70-363

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

KEWANEE OIL COMPANY,
Plaintiff,

v.

BICRON CORPORATION, *et al.*,
Defendants.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

KALBFLEISCH, SR. J.

This action was before the Court upon plaintiff's application for a permanent injunction and an order to show cause entered April 17, 1970, and the matter having been tried upon the facts by the Court without a jury as to the equitable relief sought, the Court hereby finds the facts and states separately as conclusions of law thereon as follows:

FINDINGS OF FACT

1. Plaintiff, Kewanee Oil Company (hereinafter referred to as "Kewanee"), is a corporation incorporated under the laws of the State of Delaware and has its principal place of business in the State of Pennsylvania. The Harshaw Chemical Company (hereinafter referred to as "Harshaw") is an unincorporated division of Kewanee (Tr. 26-27).

2. Defendant Bicron Corporation (hereinafter referred to as "Bicron") is a corporation incorporated under the laws of the State of New Jersey and has its principal place of business in the State of Ohio (PX-32; Tr. 830). The individual defendants, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck (hereinafter referred to as "Hamner", "Menefee", "Novak", "Richert", "Spurney" and "Suscheck"), are each citizens and residents of the State of Ohio (Tr. 27-28).

3. The amount in controversy exceeds $10,000, exclusive of interest and costs.

4. This is an action in which plaintiff seeks an injunction and damages against the individual defendants, its former employees, for breach of contract, trust and confidential relationship, and against the corporate defendant for unfair competition.

5. Part of Harshaw's activities involve the growth of synthetic crystals and its experience in this area dates back to about 1937 (Tr. 535). The subject matter of this action is the production of synthetic crystals and particularly sodium iodide thallium activated scintillation crystals.

A scintillation crystal is referred to as phosphor. When ionizing radiation strikes a phosphor, such as a so-

dium iodide thallium activated crystal, a minute particle of light is generated. This particle of light is capable of detection by a photomultiplier tube, which converts the light into a usable electronic pulse (Tr. 30). The coupling of an encapsulated scintillation crystal to a photomultiplier tube is commonly referred to as a radiation detector assembly, and such assemblies are employed for example in geophysical surveys for uranium and oil, the clinical measurement of radioisotopes and outer space exploration (Tr. 204-05).

6. In 1949 Harshaw began conducting research on scintillation crystals, such as sodium iodide thallium activated crystals, and shortly thereafter commenced manufacturing and encapsulating such crystals (Tr. 29-30). Harshaw was the forerunner in the growth of scintillation crystals, there being no other companies producing such crystals at this point in time (Tr. 30-31).

Sodium iodide thallium activated crystals were invented by Robert Hofstadter of Princeton University and he obtained a patent on his invention. Harshaw took a license under the Hofstadter patent and paid royalties. (DX E; Tr. 124, 300 Stewart). The process used to grow the 17" diameter crystal was the same process used by Harshaw to grow its 12" and 14" diameter crystals before 1966 (Tr. 683 Swinehart).

The United States Atomic Energy Commission contracted with Harshaw on June 26, 1950, to work on scintillation crystals and work continued under that contract through December 31, 1953 (DX Z; Tr. 124 Stewart). The results of the work for the Atomic Energy Commission were published in 1952 in Atomic Energy Commission report NYO-1577 (DX F; Tr. 303 Stewart). The Atomic Energy Commission paid for the work done by Harshaw on

scintillation crystals in accordance with the June 26, 1950, contract (Tr. 303 Stewart). Harshaw spent in excess of one million dollars on research (Tr. 204).

United States companies other than Harshaw which grow sodium iodide thallium activated crystals are Isotopes Inc., Packard Instrument, and Isomet Corporation (Tr. 318 Stewart; DX U-1). In addition, there are one or two companies in Japan which grow such crystals, Hilger & Watts in Great Britain, and Quartz & Silice in France (Tr. 319 Stewart; DX J). To date, no company other than Harshaw has grown or marketed a 17″ diameter sodium iodide thallium activated crystal. The evidence clearly establishes that Harshaw's competitors have grown and marketed crystals as large as 13″ in diameter, and that Quartz & Silice at least have offered to sell a 16″ diameter crystal (DX V and J).

7. The following general steps are involved in the growth of scintillation crystals by Harshaw: Raw materials, such as sodium iodide, are chemically processed until a growth stock of very high purity is achieved. This material is then "doped" with an impurity, such as thallium, in order to permit the grown crystal to scintillate. This mixture is then placed in a platinum crucible and the crucible lowered into a growth furnace. Sufficient heat is applied to completely melt the mixture into a liquid form. The crucible is then very slowly lowered into another chamber of the growth furnace of lesser temperature, thereby causing the molten mass to solidify. When the crucible reaches its lowermost point the mass has completely solidified, resulting in a fully grown crystal ingot. The crucible containing the ingot is removed from the growth furnace and placed in a melt-out furnace, which is then heated above the melting point of the crys-

tal. The crucible is then removed from the ingot. This procedure is similar to removing ice cubes from the tray in which they were formed. The ingot is then placed in an annealing furnace and permitted to slowly cool over a period of time to room temperature. The growth process is now complete and the crystal ingot is ready for cutting, preparation and encapsulation (Tr. 686-98).

Plaintiff produced a list of Harshaw's trade secrets that were involved in the production of scintillation crystals such as sodium iodide thallium activated and related activated crystals. The list was identified as plaintiff's exhibit 56 and was admitted into evidence. Harshaw agrees that it is not relying upon any trade secrets that are not on that list (Tr. 781).

8. The Bicron purification procedure was prepared by Richert and submitted to Bicron in written form marked "DX Richert A."

9. This write-up in turn had five alternative procedures designated Procedure A, Procedure B, Procedure C, Procedure D and Procedure E.

10. Procedure A is the only procedure that has been used by Bicron in the purification of sodium iodide (Tr. 951 Spurney). Nothing in Procedure A was charged as a violation of Harshaw's trade secrets (PX 49, 50 and 51).

11. Richert testified that the Harshaw purification techniques were standard chemical techniques that he would teach an undergraduate (Tr. 603). He was of the opinion that there was nothing so unique as to be of confidential character (Tr. 604).

12. The Titanium Products Corporation in its catalogue, "Special Metal Products of Titanium, Tantalum Zerconium to Serve the Chemical Process Industries,"

recommends only titanium for use with hydroiodic acid and Richert testified that a logical material to use in working sodium iodide and hydroiodic acid was titanium (Tr. 1327 Richert).

13. Harshaw's witnesses testified that Harshaw had "trade secrets" in purification which went beyond the Hay and Johnson patents (Tr. 246, 500 Stewart).

14. Stewart admitted that a person could follow the purification procedures of the Hay and Johnson patents and have a commercial product (Tr. 405 Stewart).

15. Bicron purchases its thallium iodide from the outside, does not purify it, so that trade secret "(2) Procedure for preparing high purity thallium iodide" may apply, if at all, only prospectively (Tr. 786 Swinehart).

16. Spurney prepared a description of the Bicron crystal growth process which was DX Q (Tr. 951 Spurney).

17. While Spurney had ideas for the Bicron crystal growth furnace and made some sketches, and Suscheck made drawings for the Bicron growth furnace, the growth furnace was designed by an independent engineering firm, Flocke and Associates (Tr. 955 Spurney).

18. The Bicron heating elements were designed by another independent contractor, Ben Brasch of Industrial Systems Company (Tr. 965 Spurney).

19. Swinehart admitted that the Bicron growth furnace did not look like the Harshaw furnaces (Tr. 674, 676 Swinehart).

20. The Bicron meltout furnace and annealing furnace were considered by Spurney, Suscheck, Menefee and Hamner and drawn by Suscheck (Tr. 955, 956 Spurney).

21. Spurney compared the Bicron furnaces and growth procedures to the process list, paragraph 3 of PX 56, and found that they were shown in reference publications (Tr. 958, 971 Spurney, DX R-1, R-2, R-3, R-4, R-6, R-7, R-1A).

22. * * *

23. The use of separate meltout and annealing furnaces was described in an article in Industrial and Engineering Chemistry by Harry Kremers of Harshaw (Tr. 971, 996 Spurney, DX R-3, page 1479).

24. Spurney testified he did not recall seeing the * * * at Elyria and that he designed the Bicron furnaces independently of Harshaw (Tr. 986, 993).

25. Bicron paid approximately $10,000 more for its 17-inch platinum crucible than did Harshaw because it was .012 inches thick as opposed to the Harshaw crucible which was .008 inches thick (Tr. 1125 Menefee).

26. A drawing of Harshaw's 17-inch platinum crucible showing a * * * cone height, not marked "Confidential," was found in the files of Englehard Industries in connection with a purchase order from Harshaw (Tr. 62 Schroeter, PX 20).

27. PX 20-A shows that Harshaw uses a cone height of * * * on its 10" diameter crucible and a cone height on its 12" diameter crucible (Tr. 1135 Suscheck; PX 20-A).

28. At the time of the trial of this action Bicron had not cut, prepared or encapsulated any crystals (Tr. 1089-90 Menefee).

29. In the normal process of selling crystals, the design of the device is worked out between the supplier and

the customer so as to satisfy the particular and specific use of each customer (Tr. 1089 Menefee).

30. Menefee identified a list of materials for cans or containers, optical windows, magnetic shields, reflectors, optical couplers, hermetic seals, light pipes, abrasives, and polishing solvents which Bicron might use (Tr. 1090 Menefee; DX T).

31. The speed of the saw blade of the Bicron band saw has not been modified in any way (Tr. 1097 Menefee; see PX 56, ¶ 4 (a) (i), page 4).

32. The Isotopes catalogue and the Harshaw optical crystals catalogue show use of band saws to cut crystals (Tr. 1098-99 Menefee; DX U-1, page 5; PX 41-A, page 52).

33. The Managan article gives the speeds for machining and cutting crystals (Tr. 1099; PX 43, pages 60 and 61).

34. The use of * * * interface materials is documented in DX U-3 and U-4 (Tr. 1101 Menefee; see PX 56, 4 (c) (i)).

35. The * * * of encapsulated crystals is shown in the Harshaw condensed catalogue DX U-2, pages 9, 10 and 17 (Tr. 1103 Menefee), and can be discovered by taking apart any such encapsulated crystal (Tr. 1244 Menefee; see PX 56, 4 (d)).

36. It is well known in the art that sodium iodide thallium activated crystals are hygroscopic and are to be encapsulated under conditions as dry as possible (Tr. 206 Stewart).

37. Bicron has a dry box which they hope will give a relative humidity with a dew point of * * * (Tr. 1090 Menefee; see PX 56, 4 (h)).

38. Harshaw's optical catalogue indicates that in handling sodium iodide the dew point in the dry box should be * * * (Tr. 1107 Menefee; PX 41-A, page 13).

39. In order to sustain its burden of proof with respect to the existence of trade secrets, plaintiff put in evidence a document (PX 56) which set forth with particularity the processes, procedures and manufacturing techniques which it claims comprise the trade secrets in suit (Tr. 765). Not as a finding of fact but only for purposes of further discussion, Exhibit 56 is reproduced below in its entirety:

"Among Harshaw's trade secrets are the following:

(1) Procedure for preparing high purity sodium iodide for crystal growth stock including:

(a) * * *

(b) * * *

(c) * * *

(d) * * *

(e) * * *

(f) * * *

(g) Special equipment used in purification

(i) * * *

(ii) * * *

(h) * * *

(i) * * *

(2) Procedure for preparing high purity thallium iodide

(a) * * *

(b) * * *

(3) Growing of sodium iodide (thallium) crystals

(a) * * *

(b) Furnace programming generally and including:

(i) * * *

(ii) * * *

(iii) * * *

(iv) * * *

(c) Particular design and materials of construction of Plaintiff's growing furnaces, melt-out furnaces, annealing furnaces, crucibles and accessory equipment. Among the trade secrets and confidential information in Plaintiff's growing furnaces are * * *

(d) * * *

(e) * * *

(f) Annealing procedure * * *

(4) Preparation and encapsulating of crystals

(a) Cutting of crystals

(i) * * *

(ii) * * *

(b) * * *

(c) Interface materials

(i) * * *

(ii) * * *

(iii) * * *

(d) * * *

(e) * * *

(f) * * *

(g) * * *

(h) * * *

(i) * * *

The Court hereby emphasizes that the inclusion herein of PX 56 does not in any wise represent a finding of fact in the sense that the Court has determined that the substance thereof has been proved to be trade secrets, or that the defendants or any of them acquired knowledge thereof in confidence, and under an express or implied obligation not to use or disclose them.[1]

40. Commencing in 1949 with the growth of a small (less than 2 inches in diameter) sodium iodide thallium activated crystal, Harshaw, by means of continuing research and development, was able in 1966 to grow a 17 inch sodium iodide thallium activated crystal (Tr. 202). In order to accomplish this task Harshaw spent in excess of one million dollars on research (Tr. 204) and employed as consultants such notable experts as Dr. Stockbarger, a pioneer in the field of crystal growth and Dr. Hofstadter, a Nobel Prize winner in Physics (Tr. 825, 827).

Harshaw's claimed trade secrets reside in the following areas: (1) the purification of raw materials; (2) the growth of the crystal; and (3) the preparation and encapsulating of the crystal (PX 56). These processes, pro-

---

1. In order not to disclose to the general public the trade secrets concerning which testimony was given in the course of the trial of this case, the courtroom was closed to all except court officials, the parties and their counsel, and witnesses.

On May 1, 1970, the Court adopted an order under Rule 30(b) Fed. R. Civ. P. providing that "if in the course of proceedings in this action prior to and during trial or hearing proceedings any party is required to disclose, list or state what the disclosing party contends are trade secrets, know-how or confidential information * * * [certain] rules and conditions shall govern the parties, their attorneys, and agents." Consistent with this action, this memorandum Findings of Fact and Conclusions of Law will remain impounded until further order of the Court, except that the Clerk may, on inquiry, disclose to persons other than the parties and their counsel those findings of fact and conclusions of law which do not contain any description or naming of equipment, materials or procedures mentioned in this memorandum concerning the production of sodium iodide thallium activated scintillation crystals. See "Order Supplemental to Memorandum," infra.

cedures and manufacturing techniques become more critical as the size of the crystal increases (Tr. 213-15, 639).

The defendants protest that none of the claims included in Harshaw's PX 56 are trade secrets except the item identified as 4 (c) (ii). Defendants admit that item is a trade secret, but insist they have not used and do not intend to use it in their production of crystals.

Between 1955 and 1960 there were a number of places where people were doing work and writing papers on sodium iodide crystals (Tr. 1353 Managan; Tr. 1259 Menefee; PX 42; DX U-3; DX U-5; DX F).

The Argonne National Laboratory and the Oak Ridge National Laboratory did work in fabricating and encapsulating sodium iodide thallium activated crystals (Tr. 1350 Managan).

Oak Ridge had a larger group than the Argonne National Laboratory working on scintillation crystals (Tr. 1352 Managan).

41. The items designated (1) (a) through (1) (f) inclusive of PX 56 were contained in Harshaw purification procedures (PX 46-48). Harshaw maintained a policy of distributing confidential subject matter on scintillation crystals to a limited number of its employees.

Richert was one of the employees to whom some of the documents marked "Confidential" were distributed. During his employment he maintained a file for such documents and that file remained with Harshaw when his employment was terminated (Tr. 563, 581-82, 604). He understood that he was not to disclose to anyone any procedures which he received which were marked "Confidential" (Tr. 569).

42. While employed by Harshaw, Richert was involved in part with the purification of sodium iodide (Tr. 559). In carrying out his tasks he became familiar with the various equipment used in the purification processes, thus obtaining some knowledge of the equipment set forth in items (1) (g) and (1) (h) of PX 56. The item designated (1) (i) of PX 56 was contained in a Harshaw procedure marked "Confidential" PX 64). Richert was on the distribution list for this procedure but does not recall receiving a copy of it (Tr. 1318).

43. As regards items (2) (a) and (b) of PX 56, Richert testified that he knew thallium iodide had to be added in order to create a scintillation effect and that he believed Bicron would add thallium iodide to produce the scintillation effect of sodium iodide, although he did not recommend it nor was he told by Bicron that they proposed to follow that procedure. He further testified that thallium iodide is available from a number of chemical companies as a commercial material. He testified that he performed some experiments on thallium iodide while working for Harshaw, but that he was not told nor does he know whether Bicron planned to follow the procedures contained in items (2) (a) and (b) of PX 56 (Tr. 1319-22). Richert further testified that he performed the functions of (4) (c) (i) while working for Harshaw, but that he neither advised Bicron nor was he asked by them concerning that item of PX 56 (Tr. 1322-23). Richert was questioned on direct and cross examination concerning most if not all of the items contained in PX 56, particularly as to whether any knowledge he acquired while working at Harshaw was included in the procedures he devised for Bicron (DX A Richert), and whether the procedures outlined in PX 56 were unique and/or trade secrets. Richert's evaluation of PX 56 is best illustrated by the following questions and answers appearing on pages 603-04 of the transcript:

"The Court: Did you learn anything when you began your work with Harshaw in the purification of sodium iodide which you found to be unique, to be something other than or different from that which is taught generally in the purification field?

"The Witness [Richert]: No, sir, I did not.

"The Court: Do you consider that Harshaw has any so-called trade secrets insofar as its purification of sodium iodide is concerned?

"The Witness [Richert]: I think the techniques that are used are standard chemical techniques that I would teach an undergraduate. The operations—the physical operations are—filtration, of recrystallization, of precipitation, are standard chemical techniques that I would teach.

"The Court: Did you, during the course of your work with Harshaw in the purification of sodium iodide, at any time feel that you were being privileged to view or obtain information that was so unique that it was of a confidential character?

"The Witness [Richert]: (A short pause).

"The Court: Do you want that read back?

"The Witness [Richert]: Please.

[question read by Reporter]

"The Witness [Richert]: No, sir."

44. Richert's superior, Dr. Carl Swinehart, upon whom Harshaw most heavily relies as regards its claimed trade secrets, testified that Richert "was very much involved in the development of the purification procedures; they were primarily developed by Mr. Johnson and the other men in the plant working under him." (Tr. 801). Richert's specific activities and association with the growth of crystals at Harshaw are described in greater detail by the witness Swinehart, particularly on pages 808-12 and 815-16 of the transcript.

Swinehart testified that it is necessary to employ secrets which go beyond the Hay and Johnson patents (PX 38 and PX 39) to produce sodium iodide thallium activated crystals Tr. 727-28). During Swinehart's testimony he evaluated the testimony of Richert and Richert's DX A as they relate to PX 46, 47, 48 and 56 (Tr. 725-65). To illustrate that evaluation he prepared PX 49, 50, 51, 52, 53 and 54. One of Swinehart's conclusions was as follows:

> "Whereas, again, in the Richert procedure, he comes down to * * *, and certainly implies that he is, at this point, ready to grow crystals from it; and it is our opinion that it's not ready to grow crystals at that point." (Tr. 753).[1]

45. Swinehart also implied that without knowledge acquired while working for Harshaw Richert could not have devised DX A Richert.[2]

Whereas, Richert testified as to each element of each process set forth in PX 56 (Tr. 1278-99), closing his testimony on direct examination as follows:

> "Q. I will ask you again, Mr. Richert, whether or not, in the preparation of the procedure which is shown in Defendant Richert Exhibit A, you used in any way any confidential information or material which you

---

1. Upon direct examination of Richert (Tr. 1283-84) the following question and answer appear:

> "Q. Do you know at this moment, whether the procedure that you have devised in Exhibit A will purify sodium iodide to the point that it will grow an effective crystal?
> "A. No."

2. "Q. Is it possible to prepare Exhibit A without a foundation of experimentation?
"A. Yes, I believe so.
"Q. You can do it solely by going to the library?
"A. The information is in the literature." (Tr. 621).

may have acquired while you were in the employ of The Harshaw Chemical Company?
"A. I don't believe that I have." (Tr. 1299).

Again, on cross examination, at pages 1323-24 of the transcript, plaintiff's counsel asked Richert:

"Q. Now, you also testified, I believe that in preparing Exhibit A, you did not use any confidential information of Harshaw?
"A. That's correct."

46. The defendants dispute the validity of each element and of each procedure and sub-process of plaintiff's claimed trade secrets as contained in PX 56. Defendants seek to defend their position by contending that Bicron and the defendants had not, do not, and will not follow or use the following processes and elements set forth in PX 56:

Under procedure (1): (a); (b); (c); and (i).

Under procedure (2): (a) and (b).

Under procedure (3): The first two sentences of (c); also, the following sub-process in (c): * * * also, the last sentence of (3) (c); the second sentence of (3) (d); and (3) (f).

Under procedure (4): (a) (i) and (ii); (b); (c) (ii) and (iii); (e); (g); and (i).

The defendants' second contention with regard to PX 56 is that the following elements, procedures and sub-processes thereof are in the teaching of prior art and are public knowledge.

Under procedure (1): (d); (e); (f); (g) (i) and (ii); and (h).

Under procedure (3): (a); (b) (i) (ii) (iii) and (iv); the third and fourth sentences of (c); the first and third sentences of (d); and (e).

Under procedure (4): (c) (i); (d); (f); and (h).

The Court finds that the preponderance of the evidence supports the contentions of the defendants in this finding No. 46.

47. Lloyd H. Hamner is one of the defendants in this action. Hamner is President and Treasurer of defendant Bicron Corporation and has been since August 18, 1969 (PX 58). In 1954 Hamner formed Hamner Electronics Company, a nuclear research instrumentation company which purchased sodium iodide thallium activated crystals which were assembled in nuclear detectors. In 1963 Hamner Electronic Company, Inc., became a manufacturer representative for Isotopes, Inc., marketing sodium iodide thallium activated crystals throughout the United States. On March 11, 1964, the controlling interest in Hamner Electronics Company, Inc., was sold to Harshaw Chemical Company and Hamner continued as President and Chairman of the Board of said Company (Tr. 843-45).

48. In the course of his employment, Hamner executed on or about March 11, 1964, an Agreement which provided in part:

> "3. * * * The Employee agrees to carefully guard and keep all secret or confidential information which shall or may concern the Company, its inventions, discoveries, improvements, techniques, methods of manufacture, finances, or other trade secrets, and he shall at no time, either during or after his employ by the Company, disclose, directly or indirectly, any such information without the prior written consent of the Company.
>
> * * *

"9. This Agreement shall inure to the benefit of and shall be binding upon the Company, its successors and assigns, including any corporation or entity succeeding to the business of the Company as a result of any consolidation, merger, sale or lease of assets, or reorganization."

49. Hamner's experience primarily involved the various applications to which encapsulated scintillation crystals may be put and aspects relative to the sale of such products, including customer lists (Tr. 237, 240, 843-44).

In the latter part of 1966 Hamner resigned as President and took the position of Marketing Consultant with Hamner Electronics Company, Inc. In August of 1968 the office of Hamner Electronics was moved to the Harshaw Chemical Company's East 97th Street facility in Cleveland, Ohio, at which time Hamner was required to move to the Cleveland area. In May of 1969 the offices were moved to Harshaw's new Solon facility (Tr. 846-47).

50. By letter dated June 3, 1969 (DX N), E. C. Stewart, then President of Hamner Electronics Company, Inc., notified Hamner that Hamner Electronics Company, Inc., was to be dissolved and that Hamner's agreement with the Company was to terminate effective July 31, 1969, in accord with paragraph 4 of PX 10. On July 28, 1969, Hamner, who had been moved out of his own office and into an office he shared with Menefee, notified Stewart that "in light of your termination letter dated June 3, 1969, I will be leaving your employ as of August 15, 1969." (DX N).

51. Julious M. Menefee is a defendant in this action. Menefee is Vice President and Secretary of defendant Bicron Corporation. Menefee received a B.S. in Physics and a Master's Degree in Physics from Sam Houston State

College. His Master's there was in Nuclear Physics dealing with sodium iodide scintillation spectrometer (Tr. 1062-63; PX 34-35).

52. In consideration of his employment, Menefee executed on February 3, 1964, an employment application that included an earlier form of patent and confidential information agreement (hereinafter referred to as "APPLICATION AGREEMENT") (PX 11). The APPLICATION AGREEMENT provided in part:

> "I will not at any time disclose any confidential information obtained by me during or as a result of my employment by the Company."

On February 8, 1968, in consideration of his continued employment, Menefee and Kewanee entered into an "Employee Agreement Relating to Inventions, Patents and Confidential Information" (hereinafter referred to as the "TRADE SECRET AGREEMENT") (PX 12). Paragraph 4 of the TRADE SECRET AGREEMENT provided as follows:

> "(4) Unless authorized in writing, or instructed, by the Company, I will not during or after my employment disclose to others, or use, any of the Company's inventions or discoveries or its secret or confidential information, knowledge or data which I may obtain during the course of my employment relating to its business, customers, business methods, formulae, processes, machines, manufactures, or compositions, whether or not developed by me. The 'Company's inventions and discoveries, and its secret and confidential information, knowledge and data' as used in this paragraph shall be deemed to include all inventions and discoveries and secret and confidential information, knowledge and data in its possession whether owned by it or acquired from others under obligation to maintain confidential."

In February 1969, Menefee was promoted to Group Manager-Nuclear Detectors And Systems (PX 36; Tr. 221). In this capacity he was responsible for the development of new detector assemblies employing scintillation crystals, which gave him access to and experience in all phases of crystal production, including synthesis and purification of raw materials, crystal growth, and preparation and encapsulation of finished crystals (Tr. 221-22, 648-49). However, Stewart, one of Harshaw's principal witnesses, testified that none of the persons under Menefee's supervision were directly involved in the growth research and development of sodium iodide thallium activated crystals (Tr. 224).

53. In the spring of 1968 Menefee became dissatisfied with his work at Harshaw and formed a consulting business, Nuclear Consultants, with Karl Stout. Menefee discussed this outside venture with Stewart. On June 9, 1969, he gave notice to Stewart that he was leaving Harshaw and left on July 31, 1969 (Tr. 1068).

54. William P. Novak is one of the defendants in this action. Novak is an employee of Bicron Corporation. He was employed by Bicron Corporation on January 1, 1970, and owns no stock in that corporation (Tr. 908). Novak was employed by Harshaw in April 1962. In consideration of his employment, Novak, on April 18, 1962, executed the APPLICATION AGREEMENT (PX 28). On February 8, 1968, in consideration of his continued employment, Novak and Kewanee concurrently executed the TRADE SECRET AGREEMENT (PX 29). Novak was a technician in the Crystal Canning Department and for six years was engaged in part in the canning and encapsulation of scintillation crystals, such as sodium iodide thallium activated (Tr. 228, 910-11). He was a lead man in the Department for "six months or maybe a year," and in this capacity was responsible for quality control and the

teaching of canning and encapsulation techniques to other employees whom he supervised (Tr. 910-11).

55. Novak was dissatisfied with his future at Harshaw and in the Fall of 1968 started investigating other opportunities. On February 14, 1969, he gave a $1,500 binder's fee for an Open Pantry franchise (Tr. 905-06; DX P). On September 12, 1969, he left Harshaw after being told he was to return to the Encapsulation Department (Tr. 248, 905). Novak was employed as an electronics technician from September 1969 to December 20, 1969, at the General Electric Company (Tr. 907-08). He left General Electric because he was assigned to a twelve-hour manual labor job during the strike (Tr. 908). Novak studied electronics at Griswald Institute and received a certificate in December 1969. He wired the furnaces for the defendant Bicron "on the basis of what [he] learned at Griswold Institute." (Tr. 919).

56. Thomas H. Richert is a defendant in this action. Richert is an Instructor of Chemistry at Kent State University, Ashtabula branch. He is not an employee, officer or shareholder of Bicron Corporation (Tr. 543, 558, 600, 831). Richert was awarded a B.S. in Chemistry in 1957 and a Master of Science in Chemistry in 1959 from John Carroll University. While studying for his Master's he accepted a graduate teaching assistantship in the Department of Chemistry at John Carroll. From June 1959 to June 1961 he was a graduate assistant at Case Institute of Technology studying analytical chemistry. "The prime emphasis of the group at Case was purification by precipitation. This is the same type of technique that is used in purifying a number of materials at Harshaw, including sodium iodide." (Tr. 544-46, 599).

57. Richert was employed by Harshaw in February 1962. In consideration of his employment, Richert, on Feb-

ruary 1, 1962, executed the APPLICATION AGREEMENT (PX 30). Richert worked in the Purification Department and was actively involved in the preparation of raw materials for crystal growth, including some "short-term jobs" that were assigned to him by Johnson (Tr. 550, 598). Additionally, he was involved in the preparation of certain bonding materials used in the encapsulation of crystals (Tr. 596-97). Richert terminated his employment with Harshaw in August of 1968 and accepted a one-year appointment as a visiting lecturer in the Department of Chemistry at John Carroll University. That appointment terminated in August 1969. On September 16, 1969, he received an appointment as an instructor at the Ashtabula branch of Kent State University and has held that position since that time.

Richert prepared the purification procedure for Bicron as a consultant. He completed the procedure in written form "sometime in the first part of December of 1969." He estimated that "actual preparation of the writing and of the procedure, the library work that [he] did" required about 100 to 110 hours (Tr. 557).

58. Richard Spurney is a defendant in this action. Spurney is General Manager and a Director of defendant Bicron (Tr. 942).

Spurney was enrolled at Case Western Reserve in the field of Chemistry until 1961. He then enrolled at Fenn until 1964, when it became Cleveland State University, and attended Cleveland State until the summer of 1969, where he was enrolled in Chemical Engineering in a five-year program.

59. Spurney was employed by Harshaw from May 1961 to December 1966 (Tr. 947). From December 1966 to September 1969 he was employed by General Electric Com-

pany working in optical ceramics and single-crystal sapphire (Tr. 942, 944, 947).

60. In consideration of his employment with Harshaw, Spurney, on May 31, 1961, executed the APPLICATION AGREEMENT (PX 31). Spurney was primarily involved with the growth of crystals, including the "doping" of raw materials and the programming of growth furnaces (Tr. 227-28, 234-35, 985). He was also responsible for reworking platinum crucibles used in the growth of synthetic crystals (Tr. 660-61, 984).

61. Harry Suscheck is a defendant in this action and a Director of defendant Bicron Corporation (Tr. 1131). Although Suscheck, in response to the question, "What is your present position with Bicron?" answered, "I'm General Manager" (Tr. 1132), neither counsel nor the Court sought to reconcile that statement with the statement of Spurney as shown at page 942 of the transcript, i.e., "My name is Richard Spurney. I'm General Manager, Bicron Corporation." Therefore, the Court is compelled to make the finding that Bicron at the time of trial had two General Managers.

62. Suscheck was trained in tool and die and in machine design at Cleveland Engineering Institute. Thereafter, for approximately six and one-half years prior to his being employed by Harshaw he performed primarily design work.

Suscheck was employed by Harshaw in April 1963. In consideration of his employment, Suscheck, on April 6, 1963, executed the APPLICATION AGREEMENT (PX 13). On February 8, 1968, in consideration of his continued employment, Suscheck and Kewanee concurrently executed the TRADE SECRET AGREEMENT (PX 14). For the first three years of his employment with Harshaw he

worked in the Engineering Department doing design work on the detectors. Thereafter, he was given the additional responsibility of production of the final detectors and the title of "Production Manager of Scintillation Detectors." In that capacity he supervised, either directly or indirectly, approximately thirty-five employees (Tr. 1128). Among other things, he was responsible for the encapsulation of scintillation crystals, including the design of containers therefor (Tr. 239-40, 1145). Suscheck did the engineering work on the design of finished units; and he determined what units were to come out of what crystals, which function is a key operation in determining the profit or loss in the operation (Tr. 661).

63. Prior to joining Harshaw, except for Richert's and Menefee's academic training, none of the individual defendants had any experience with respect to the purification of raw materials, growth and/or preparation and encapsulation of scintillation crystals (Tr. 216, 648, 1158, 590). However, each individual defendant acquired experience in one or more of these areas while employed by Harshaw. The evidence establishes that all of the defendants except Richert joined together with the intent to manufacture and market sodium iodide thallium activated crystals; that their first attempt failed; and that until enjoined they were engaged in a second effort to produce scintillation crystals. Whether the defendants have the requisite capability to produce scintillation crystals has not been proved. The sum of the evidence on this point is reflected in the testimony of Swinehart to the effect that in his opinion *they could have* the requisite capability of producing a large crystal such as the 17" sodium iodide thallium activated crystal (Tr. 665-70).

64. Each of the individual defendants occupied a position of trust and confidence with Harshaw, and for this

reason they were given access to various facilities wherein some secretive operations were conducted (Tr. 230-31, 566, 664).

65. Spurney resigned in December 1966 to accept a position with the General Electric Company (Tr. 249, 947). Richert resigned in August 1968 to accept a teaching position at John Carroll University (Tr. 249, 549). Hamner (after receiving Stewart's letter (DX N)) tendered his resignation on July 28, 1969, and terminated his employment as of August 15, 1969 (DX N). He gave as a reason for resigning his desire to attend the New York School of Finance in order to learn how to manage his stock portfolio (Tr. 247). Novak summarily resigned and left Harshaw on September 12, 1969 (Tr. 249, 905). Menefee tendered his resignation on June 9, 1969, and terminated his employment as of July 31, 1969 (Tr. 1068). He indicated to Stewart that he was dissatisfied and was resigning in order to engage in private nuclear consulting activities (Tr. 247, 1077). Suscheck tendered his resignation on August 4 or 5, 1969, and terminated his employment as of August 15, 1969 (Tr. 1130). He stated that his resignation was prompted by the need to devote more time to a plastics company in which he had an interest (Tr. 248).

66. Bicron Corporation is a New Jersey corporation, incorporated by application of its attorney dated August 14, 1969, and formed by Lloyd H. Hamner, Julious M. Menefee, Richard Spurney and Harry Suscheck by Agreement signed August 16, 1969 (Tr. 122-24, 876-77; PX 32, 58).

67. Late in May or in early June of 1969 Menefee, as a result of discussions with Stewart, became discouraged with Harshaw, and on June 9th he informed Stewart he was resigning. He actually left Harshaw July 31, 1969 (Tr.

1087). About the 10th or 11th of June, 1969, he told Hamner of his intention to leave Harshaw (Tr. 1078). Discussions which followed between Menefee and Hamner resulted in an agreement to go into business together. They decided that they would manufacture sodium iodide scintillation devices, the most common product in the nuclear field (Tr. 1079).

68. About the middle of June, 1969, Menefee related his discussions with Hamner to his close personal friend Suscheck. Suscheck became interested in this new business venture (Tr. 1079).

69. At about this time Menefee contacted Spurney, who was employed by General Electric Company, and asked if he would be interested in going into business. Menefee knew Spurney from the time when he was employed by Harshaw (1962-1966) and he was the only crystal grower Menefee knew who was not then working for Harshaw (Tr. 1079-80).

70. Realizing that a chemist would be required to purify the raw materials, Menefee contacted Richert in late June or early July 1969 (Tr. 1080-81). Richert had already accepted a teaching position for the forthcoming academic year, but indicated that he would be willing to act in a consulting capacity with respect to the purification of sodium iodide (Tr. 552-54).

71. On June 20, 1969, a meeting was held at the Brown Derby between Hamner, Menefee, Suscheck and Spurney to discuss the various aspects of starting a business to compete with Harshaw in the manufacture of sodium iodide thallium activated crystals (Tr. 868-69, 979-81). About one week later another meeting was held at Hamner's house which was attended by the same individuals (Tr. 853).

72. After this meeting Hamner consulted with his attorney, Theodore Abeles, about the possibility of forming a corporation and arranged a meeting with Menefee, Suscheck, Spurney and his attorney. On July 2, 1969, Menefee, Suscheck and Spurney met with Hamner's attorney in New Jersey to discuss the promotion of a corporation (Tr. 854, 1080, 1086).

73. After this meeting Menefee took a two-week vacation which he spent at the Cleveland, Case and Kent Libraries and his own personal library documenting each step that would be required in going into the scintillation detector field. Spurney went through the same exercise in his own area. The public literature that was collected was sent to Hamner's attorney for his review and approval, which was given (Tr. 949, 1080, 1086).

74. On August 4, 1969, Spurney contacted Engelhard Industries on behalf of the newly formed business and requested price quotations on a 17-inch diameter platinum crucible (PX 1A; Tr. 65-70, 984).

75. On August 5, 1969, Hamner met with his attorney to discuss the new corporation and on August 6, 1969, Hamner and his attorney flew to Cleveland and met with Menefee, Suscheck and Spurney to discuss the problem of this new corporation (Tr. 855, 1086).

76. Hamner, Menefee and Suscheck were employees of Harshaw when the activities described in Findings 65, 67-75 transpired.

77. Defendants Novak, Richert and Spurney were not employed by Harshaw at the time when they were approached to go to work for Bicron (Tr. 551, 907-08, 947).

78. On August 16, 1969, Hamner, Menefee, Spurney and Suscheck concurrently executed an Agreement forming Bicron Corporation. Pursuant to the terms of the

Agreement, the four individuals comprised the Board of Directors, Hamner being Chairman of the Board and President, and Menefee being Vice President and Secretary. The Agreement expressly recognized the "special abilities" of the parties and included non-competition and non-disclosure provisions (PX 58).

79. After signing the Agreement temporary offices were set up in Menefee's home. Suscheck and Menefee worked together designing and building equipment until approximately September 29, 1969, when they were joined by Spurney and the three continued the project (Tr. 1087).

80. Menefee again contacted Richert in the early part of September 1969, and a meeting followed shortly thereafter at Menefee's house involving Hamner, Spurney, Richert and Menefee. Richert agreed to act as a consultant to Bicron and devise a procedure for the purification of sodium iodide (Tr. 555-56).

81. In early December 1969, Spurney contacted Novak regarding employment by Bicron. Novak accepted the offer and became a Bicron employee on January 1, 1970 (Tr. 908).

82. During the latter part of December or early January 1970, Bicron's plant was completed and operations were shifted there from Menefee's house (Tr. 1007). During the first run the crucible was damaged and forwarded to Engelhard in early March 1970 for repairs (Tr. 87, 90). The crucible was returned to Bicron and a 17-inch diameter crystal was grown and placed in the annealing furnace by mid-April 1970.

83. Each of the individual defendants possessed special abilities with respect to the various facets involved in the production of scintillation crystals and they were selected by Bicron for this very reason. In seeking financ-

ing for its new business, Hamner represented to an investment firm that the product which Bicron planned to manufacture was highly technical, but that some of its personnel had worked at Harshaw and possessed the necessary skills to make the product (Tr. 49, 51). Menefee asked Spurney to join Bicron because he was an expert crystal grower (Tr. 1187); similarly, Richert was selected because he too was an expert in the field of purification (Tr. 1188). The "special abilities" of Hamner, Menefee, Spurney and Suscheck were expressly recognized and dealt with in the Agreement executed by the four individuals (PX 58). Even though Hamner, Menefee and Suscheck knew when they resigned that they were in the process of forming a competing business, this information was never revealed to Harshaw (Tr. 249).

84. On or about August 1, 1969, Suscheck, while still in the employ of Harshaw, prepared a drawing of the proposed Bicron plant for the purpose of obtaining an estimate on the cost of construction (Tr. 1167-68; PX 60).

85. In April or May 1969, Menefee borrowed a book from Mr. Ward, Products Sales Manager for Scintillation Crystals, containing a customer list of scintillation crystal users and representing about 90% or more of the total dollar volume represented by Harshaw's customers (Tr. 509, 1071). Menefee made at least seven copies of the book, giving one copy to Hamner, retaining one copy, and giving the remaining copies to Ward (Tr. 1074). The evidence discloses that at the time he borrowed it Menefee had a perfect right to the book, but fails to disclose whether Menefee and/or Hamner had a copy of this book when they left Harshaw or at the time of trial; nor has there been any evidence that the defendants, or any of them, had made an effort to use any of the information contained in the book. Bicron is confining its sales efforts to four-

teen original equipment manufacturers. There is an association of nuclear instrument manufacturers called "Anim," which includes all of the accounts of interest to Bicron, the total company membership of "Anim" for 1970 being fourteen companies as shown in the "Anim" annual report for 1970 (DX O; Tr. 1075-76).

86. Harshaw started growing 2-inch sodium iodide thallium activated crystals in 1949-1950. By 1950 it was growing 5-inch and 8-inch crystals; by 1956-1957, 10-inch crystals; in the early 1960's, 12-inch crystals; by 1963-64, 14-inch crystals; and in 1966 Harshaw began growing the 17-inch crystals (Tr. 202).

87. Admittedly, Harshaw was well into crystal production years before any of the defendants were employed. The elements and processes described in PX 56 were the results of experiments in which a number of employees participated. "Certainly, a lot of people need to know in order to accomplish the end. These procedures [PX 56] are complex and they depend on everybody doing their part." (Tr. 769). Although Harshaw's success was achieved largely through trial and error practices, its progress was the result of work and study of its own scientists and consultants it employed, as well as patents it had acquired and literature that had been published on the subject of sodium iodide crystals. The entire number of employees engaged in the growth of crystals by Harshaw was not disclosed.

There is no factual dispute over the claim by Harshaw that PX 56 accurately describes the procedures, elements and sub-processes which were being employed by Harshaw on and prior to August 15, 1969.

Counsel for each party, in their briefs and proposed findings, have carefully and skillfully separated each item

in plaintiff's Exhibit 56 and compared the testimony of the individual defendants and of the witnesses for Harshaw insofar as that testimony relates to the functions which each defendant performed while in the employ of Harshaw. In resolving the contradictions between the testimony of the witnesses, I see no need to repeat by rote each item involved.

88. Suffice it to say, I find that Harshaw has proved that Spurney was involved in all aspects of crystal growth, including reworking crucibles, programming furnaces and assisting with furnace loading and melt-out; thus, he became familiar with paragraphs (3) (a) through (3) (f) of PX 56.

89. Suscheck was involved in the encapsulation of crystals, and was responsible for filling customers' orders and cutting to correct size and encapsulating crystals in the proper type of container. In this capacity he became familiar with the procedures employed to perform those operations.

90. Novak worked in the encapsulation department over a six-year period. His activities included the cutting, polishing, grinding and encapsulating of scintillation crystals; thus, he became familiar with Harshaw's encapsulation procedures.

91. Richert in his activities became familiar with the distillation operation incidental to purification.

92. Menefee, due to his high ranking position, was probably familiar with almost all of the elements and procedures described in PX 56.

93. Since Hamner was primarily involved in the sale and application of scintillation crystals, it is unlikely that he was sufficiently familiar with any of the items

described in PX 56 to enable him to use or communicate any of them.

94. Harshaw has failed to establish by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraphs (1) (a) through (1) (i) of PX 56 are trade secrets of plaintiff.

95. Harshaw has established by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraphs (2) (a) and (2) (b) of PX 56 are trade secrets of plaintiff.

96. Harshaw has established by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraph (3) (a) and the following portions of (3) (c) of PX 56 are trade secrets: * * *

97. Harshaw has failed to establish by the requisite degree of proof that the processes, procedures and manufacturing techniques of the following paragraphs of PX 56, (3) (b) (i), (3) (b) (ii), (3) (b) (iii), (3) (b) (iv), and the following described portions of (3) (c), i.e., * * * are trade secrets.

98. Harshaw has established by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraphs (3) (d) and (3) (f) of PX 56 are trade secrets.

99. Harshaw has failed to establish by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraph (3) (e) of PX 56 are trade secrets.

100. Harshaw has established by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in the following paragraphs of PX 56, (4) (a) (i) and (4) (a) (ii), insofar as Har-

shaw employs * * * are trade secrets. However, the use of * * * is not a trade secret.

101. Harshaw has established by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraphs (4) (b), (4) (c) (i), (4) (c) (ii), (4) (c) (iii), (4) (f), (4) (h) and (4) (i) of PX 56 are trade secrets.

102. Harshaw has failed to establish by the requisite degree of proof that the processes, procedures and manufacturing techniques set forth in paragraphs (4) (d), (4) (e), and (4) (g) of PX 56 are trade secrets.

103. Harshaw has not disputed that it has competitors as identified in finding No. 6. Although Harshaw was a forerunner in the growth of scintillation crystals, there is no evidence from which the Court can determine its present position in the market or the comparable quality of its product. There is a total absence of any proof of the processes, procedures and manufacturing techniques employed by its competitors.

104. With the exception of Hamner, who did not sign either an Application Agreement or a Trade Secret Agreement, and Richert, who signed an Application Agreement but not a Trade Secret Agreement, Harshaw regularly required its employees to execute an Application Agreement and more recently the Trade Secret Agreement.

In February 1968 Harshaw posted on one bulletin board a copy of § 1333.51 Ohio Revised Code, which makes the theft of a trade secret a crime in Ohio. How long it remained on the bulletin board is not known.

Harshaw installed fencing bearing "No Admittance" signs around various plant sites and maintained a security guard therein.

Harshaw marked certain prints and documents with a notice of confidentiality and restricted their distribution to key employees.

105. Harshaw witnesses have insisted that visitors to the areas wherein crystals were being manufactured were required to sign in and were not permitted to observe its trade secrets.

106. Harshaw's witnesses admitted that persons not employees of Harshaw were given access to the Harshaw canning and encapsulation facilities without being required to sign secrecy agreements (Tr. 336, 519-23, 529). Swinehart admitted that persons not employees of Harshaw were taken through the Harshaw purification room (Tr. 814, 822). Harshaw's witnesses admitted that persons not employees of Harshaw were taken through the Harshaw furnace room (Tr. 345, 524, 814). Nothing was covered up or concealed from any visitor during the time they were visiting the Harshaw plant (Tr. 488). No visitor to the Harshaw Elyria facility signed in. There was testimony about visitors signing in and visitor sign-in books but when presented it was found that only the employees of Harshaw signed in (Tr. 409-10, 250, 290-01; DX K, DX L, DX M).

107. Harshaw catalogues and the catalogues of International Nickel and Engelhard Industries have photographs of Harshaw crucibles, Harshaw furnaces, Harshaw string saws, Harshaw dry boxes, Harshaw purification, and Harshaw encapsulation (Tr. 94, 361-72; PX 41 A, DX A, DX B, DX I). Television station Channel 5 made a movie of portions of Harshaw's 97th Street research laboratory and showed it on television (Tr. 329). Professor Smakula from Massachusetts Institute of Technology is a consultant for Harshaw and wrote a textbook on crystal growth, and

he did not clear his book with Swinehart for revelation of trade secrets (Tr. 825). Harshaw has publicized the fact that it grows sodium iodide crystals up to 17 inches in diameter (DX D; Tr. 327). Harshaw is preparing to grow a 30-inch sodium iodide thallium activated crystal (Tr. 355). Harshaw has shown, in an advertisement, a photograph of a sodium iodide thallium activated crystal with a cone angle of 135° (Tr. 1135; DX W). Harshaw makes no claim that a 135° angle is a trade secret of Harshaw (Tr. 792).

108. Based upon findings Nos. 105, 106 and 107, and upon all the evidence in the case including the fact that other employees of Harshaw were permitted to work on and observe Harshaw's claimed trade secrets, the Court finds that not sufficient disclosure occurred so as to place the claimed trade secrets in the public domain.

109. The Court finds that plaintiff has failed to establish by the requisite degree of proof that the named defendants breached any fiduciary or other duty by going into competition with Harshaw or by planning to go into competition with Harshaw while still in Harshaw's employ.

The evidence is undisputed that Bicron was planned and came into existence as the result of the concerted action of the individual defendants. Therefore, plaintiff's contentions that Bicron induced the individual defendants to breach their confidential relationship with plaintiff; that Bicron solicited the individual defendants to disclose plaintiff's trade secrets to Bicron; that Bicron unjustly enriched itself at the expense of plaintiff through the disclosure and use of plaintiff's trade secrets; and that Bicron is guilty of unfair competition are without merit.

110. A complaint was filed against the defendants on Friday, April 17, 1970, and served upon those defendants on Monday, April 20. Simultaneously, plaintiff filed a "Motion for Order to Show Cause and Temporary Restraining Order" which was based upon the affidavits of Elmer C. Stewart and Carl F. Swinehart and the Certificate of Edward P. Troxell. This motion was granted and an order was entered on April 17, 1970.

Also on April 17, 1970, "Notice to Take Depositions on Oral Examination" and "Motion for Leave to Depose the Individual Defendants Within the Period of Twenty Days Next Following the Filing of the Complaint" were filed by the plaintiff. . All the defendants were deposed by counsel for the plaintiff on May 6 and May 7, 1969, at which time all the documents, drawings, and other papers of defendant Bicron Corporation were turned over to plaintiff's counsel for review and copying (Tr. 1132).

CONCLUSIONS OF LAW

1. This Court has jurisdiction of the parties and of the subject matter of this action.

2. Since the jurisdiction of this Court is premised upon diversity of citizenship, the law of Ohio is controlling with respect to all substantive matters. *Erie v. Tompkins,* 304 U.S. 64 (1938); *W.R. Grace & Co. v. Hargadine,* 392 F.2d 9 (6th Cir. 1968).

3. Ohio has adopted the Restatement's definition of trade secrets, *B. F. Goodrich Co. v. Wohlgemuth,* 117 Ohio App. 493, 192 N.E. 2d 99 (1963), which provides in part:

> "A trade secret may consist of any formula, pattern, device or compilation of information which is

used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers * * * A trade secret is a process or device for continuous use in the operation of the business. Generally it relates to the production of goods, as, for example, a machine or formula for the production of an article. * * *" Restatement of the Law of Torts, 5, Section 757, Comment b.

4. The individual defendants held positions of trust while at Harshaw, thereby creating a confidential relationship, and they owed a duty of loyalty and fidelity to their employer. *Du Pont Powder Co. v. Masland,* 244 U.S. 100 (1917).

In *Goodrich v. Wohlgemuth,* supra, at page 293, the court stated:

"In cases of this character the law does not require an agreement between an employer and employee restricting the employee from securing employment with a competitor before an injunction may issue.

"It is a rule in equity jurisprudence that, if an employee gains knowledge of his employer's trade secrets as a result of the confidential relationship existing between employer and employee, and, in violation of the confidence, discloses such secrets to competitors after the termination of his employment, such abuse of confidence may be enjoined. The basis for equitable intervention is the employee's wrongful conduct in violating the confidence. Equitable intervention is sanctioned when it appears, as it does in the instant

case, that there exists a present real threat of disclosure, even without actual disclosure."

On this score see 35 Ohio Jurisprudence (2d), 700, Section 78, wherein it is stated as follows:

"The employee is bound to the utmost good faith toward his employer and to be loyal and faithful to his interests and to not act in antagonism or serve a private interest of his own in opposition thereto."

"There is an implied agreement on the part of the employee that he will faithfully serve and be regardful of the interests of his employer *during the term of his service* and carefully discharge his duty to the extent reasonably implied by the relation of employer and employee."

5. The test for determining the existence of enforceable trade secrets is stated at page 13 of *W.R. Grace & Co. v. Hargadine*, supra, as follows:

"Since this case is brought under federal diversity jurisdiction and the alleged misappropriations took place principally in Ohio, we start with appellant's own trade secret tests drawn from Ohio law. In Cincinnati Bell Foundry Co. v. Dodds, 10 Ohio Dec. Rep. 154, 19 Weekly L.Bull. 84 (Super. Ct. 1887), Judge William Howard Taft provided this classic if simplified test:

'1st. Was the process a secret one?

'2d. Did John B. Dodds acquire knowledge of it in confidence, and under an implied obligation not to use or disclose it?' Cincinnati Bell Foundry Co. v. Dodds, supra at 156."

The Court applied the above test in its findings Nos. 94 to 102 inclusive in determining which processes, procedures and mechanical techniques desribed in PX 56 are trade secrets and those which are not.

6. The facts disclose that the first effort of the defendants to grow a sodium iodide thallium activated scintillation crystal failed, and at the time this suit was filed the defendants were engaged in a second effort. The defendants admit their intention to manufacture a crystal in competition with the plaintiff. The facts disclose, without a question of doubt, that the defendants have the capability to manufacture such a product notwithstanding their admission that they do not know whether or not the procedures described by Richert (DX A) will succeed in growing a sodium iodide thallium activated scintillation crystal. The plaintiff has submitted convincing proof not only that the Richert formula (DX A) will not grow such a crystal but also that in order to grow a sodium iodide thallium activated scintillation crystal the defendants must, of necessity, supplement the Richert formula with plaintiff's trade secrets.

The Court concludes that there is an imminent danger of disclosure of plaintiff's trade secrets to Bicron and the use of these trade secrets by Bicron.

7. The Court is fully aware of the two apparently conflicting principles of law involved in the present proceeding. On one extreme lies the principle that an individual has the right to change his employment for whatever reason he wishes and the right to utilize his general skill, knowledge and experience for the benefit of his employer. Indeed it is inevitable that some of the knowledge acquired while in the former employment should be made available to the new employer, and courts will not deprive

the employee of the right to use the skill he developed through the years.

At the other end of the spectrum is the law of unfair competition, including trade secrets law, in which the courts seek to enforce increasingly high standards of fairness or commercial morality and to protect the owner of information obtained through the ingenuity and effort of its employees, and its expenditures of time and money.

8. This Court has formulated an order which will strike a proper balance between the public policy of protecting and encouraging the right of the individual to pursue his livelihood in the vocation he chooses, and the rights of an employer to its accumulated trade secrets obtained by the expenditure of great amounts of time and money.

The plaintiff is granted an injunction in accord with the terms of the Court's order filed simultaneously herewith.

GIRARD E. KALBFLEISCH
United States Senior District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ORDER SUPPLEMENTAL TO MEMORANDUM OF DECISION

(Filed November 24, 1970)

In order not to disclose to the general public the trade secrets concerning which testimony was given in the course of the trial of this case, the courtroom was closed to all except court officials, the parties and their counsel and witnesses. Consistent with this action the exhibits and the Memorandum of Decision will remain impounded until further order of the court, except that the Clerk may, on inquiry, disclose to persons, other than the parties and their counsel, those conclusions of law and fact which do not contain any naming or description of equipment, materials or procedures mentioned in the exhibits and memorandum of decision concerning the production of sodium iodide thallium activated scintillation crystals.

GIRARD E. KALBFLEISCH
United States Senior District Judge

ORDER FOR PERMANENT INJUNCTION

(Filed November 24, 1970)

Civil Action No. C 70-363

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

KEWANEE OIL COMPANY,
Plaintiff,

vs.

BICRON CORPORATION, *et al.*,
Defendants.

ORDER FOR PERMANENT INJUNCTION

This cause having come on for hearing on an Order to Show Cause entered April 17, 1970, and having heard and considered all the testimony submitted herein, and having considered the verified complaint, together with the affidavits submitted in support of the temporary restraining order, the entire record, proceedings, briefs, and arguments of counsel, and the Court being fully advised in the premises;

A. IT IS ORDERED that defendants Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, their agents, servants, employees, and attorneys and all persons in active concert and participation with them be and are hereby restrained from:

(1) Using and/or communicating or divulging either orally or in writing, or otherwise, to any per-

son, firm, corporation, or other person whomsoever, the trade secrets of plaintiff, as identified in Findings Nos. 94 to 102 inclusive.

(2) Accepting or undertaking any employment by or engaging in any work assignment for any person, firm or corporation, and particularly the defendant Bicron Corporation, or any company related thereto, which could encourage, require, permit, call for or result in the disclosure and/or use of the trade secrets of plaintiff, referred to in item A (1) herein.

B. IT IS FURTHER ORDERED that defendant Bicron Corporation, its officers, directors, agents, servants, employees and attorneys and all persons in active concert and participation with them, be and are hereby restrained from:

(1) Persuading, enticing, and inducing defendants Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, or any of them, or any other employee or former employee of plaintiff, to disclose any trade secrets and confidential information of plaintiff acquired by him, or imparted to him.

(2) Using and/or communicating or divulging either orally or in writing, or otherwise, to any person, firm, corporation, or other person whomsoever, the trade secrets of plaintiff, as hereinbefore referred to in item A (1), acquired by it, or imparted to it, by defendants Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck.

C. IT IS FURTHER ORDERED that defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, Wil-

liam P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck, their agents, servants, employees and attorneys and all persons in active concert and participation with them be and are hereby required to immediately deliver up to plaintiff any and all originals and copies of any nature whatsoever, of notes, work papers, charts, blueprints, drawings, sketches, books correspondence, memoranda, photographs, test data, research and development reports, specifications, designs, and any and all other tangible things in their possession or control which constitute, represent, evidence, reflect or record the trade secrets of plaintiff, as hereinbefore referred to in item A (1).

D. It Is Further Ordered that defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Thomas H. Richert, Richard W. Spurney and Harry Suscheck shall not be restrained by this injunction from using any trade secret of plaintiff after it has been released to the public by plaintiff, such as by the issuance of a patent, or has otherwise become generally available to the public, or other members of the industry, or is obtained by defendants from sources having the legal right to convey such information.

Girard E. Kalbfleisch
United States Senior District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

NOTICE OF APPEAL

(Filed December 2, 1970)

Notice is hereby given that defendants Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, William P. Novak, Richard W. Spurney and Harry Suscheck hereby appeal to the United States Court of Appeals for the Sixth Circuit from the "Order for Permanent Injunction" entered in this action on the 24th day of November, 1970.

Respectfully submitted,

BICRON CORPORATION
LLOYD H. HAMNER
JULIOUS M. MENEFEE
WILLIAM P. NOVAK
RICHARD W. SPURNEY
HARRY SUSCHECK
By WM. C. McCOY, JR.
McCOY, GREENE & HOWELL
Attorney for Defendants

Of Counsel:
T. L. ABELES, ESQ.
LUM, BUINNO & TOMPKINS

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

NOTICE OF APPEAL

(Filed December 7, 1970)

Notice is hereby given that plaintiff, Kewanee Oil Company, hereby appeals to the United States Court of Appeals for the Sixth Circuit from the "Order for Permanent Injunction" entered in this action on the 24th day of November, 1970.

Respectfully submitted,

EDWARD P. TROXELL
BARRY L. SPRINGEL
JONES, DAY, COCKLEY & REAVIS
Attorneys for the Plaintiff, Kewanee Oil Company

Of Counsel:
ROBERT P. MOONEY, ESQ.
JOHN P. HAZZARD, ESQ.
KEWANEE OIL COMPANY

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION
(Title omitted in printing)

ORDER FOR INJUNCTION PENDING APPEAL

(Filed December 14, 1970)

This cause came on to be heard on motion of plaintiff for an injunction pending appeal to the United States Court of Appeals for the Sixth Circuit, and it appearing to the Court that plaintiff is entitled to such injunction to preserve the status quo pending appeal and thereby prevent irreparable injury to the plaintiff, and upon consideration IT IS HEREBY ORDERED:

1. The motion of plaintiff for injunction pending appeal is hereby granted;

2. The defendants, Bicron Corporation, Lloyd H. Hamner, Julious M. Menefee, Harry Suscheck, Richard W. Spurney, William P. Novak, and Thomas S. Richert, and each of them, are hereby restrained and enjoined from disclosing, divulging, using, employing, or publishing the following trade secrets: 1(b); 1(c); 1(d); 1(e); and 1(i); 3(b) (ii), (iii) and (iv); 3(e); 4(d); 4(e); and 4(g), as each appear in plaintiff's Exhibit 56, until such time as the United States Court of Appeals for the Sixth Circuit rules upon, determines, adjudges and decides the issues raised by the various notices of appeal filed herein. This injunction order is in addition to the Court's permanent injunction order filed on November 24, 1970, and entered pursuant to Rule 77 (d) Fed. R. Civ. P. on November 25, 1970;

3. This order is granted upon the condition that the plaintiff post with this Court a bond in the sum of

$50,000.00, said bond to be first approved by this Court, to be effective during the pendency of the appeals noted and filed herein.

GIRARD E. KALBFLEISCH
United States Senior District Judge

REFERENCE TO THE OPINION AND JUDGMENTS OF THE COURT OF APPEALS

The opinion of the United States Court of Appeals for the Sixth Circuit, filed May 10, 1973, has been reproduced as Appendix A, pages A1-A25, to the Petition for Writ of Certiorari.

The judgment of the United States Court of Appeals for the Sixth Circuit in Case No. 71-1041, filed May 10, 1973, has been reproduced as Appendix B, pages A26-A27, to the Petition for Writ of Certiorari.

The judgment of the United States Court of Appeals for the Sixth Circuit in Case No. 71-1042, filed May 10, 1973, has been reproduced as Appendix C, pages A27-A28, to the Petition for Writ of Certiorari.